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THE LITTLE RED SQUIRRELS OF THE WOOD, PLAYING AT HIDE AND SEEK

The Book of Knowledge

The Children's Encyclopædia

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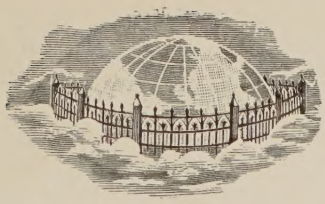

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Old Cairo, with the tombs of the Caliphs, and the Citadel in the distance

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THE GREAT SIGHTS OF EGYPT

THE world has made haste since Pharaoh died, but nothing more wonderful has happened under the sun than the change by which we may sit reading the Book of Knowledge in New York on Monday, before another Monday be in London, and on the following Saturday may cross the desert at Thebes, and walk among the Tombs of the Kings. In one week we may walk on the ashes of two dead empires; we may look on the ruins of Rome and walk among the ruins of Egypt. Between one Sunday and another we may sit in the shadows that fall from all that is left of the palaces of Cæsar and the temples of Pharaoh. We go six thousand years back in six days.

It is strange to arrive after so swift a journey from London in such an old corner of the world as Port Said, where the traveller for Cairo parts from the traveller for India. The ship sails on its way to India, up the Suez Canal into the Red Sea; he who goes to Egypt takes train for Cairo, and rides for four hours, catching glimpses of the canal here and there, and peeps of queer corners of Egypt, where there is building on the banks of the Nile a country which may one day be, let us hope, greater and mightier and nobler than the Egypt that Moses and Rameses knew. And at last, less than two weeks after leaving New York, we are in Cairo.

Nothing that the traveller has ever seen is quite like Cairo — if he has never been to India, or Damascus, or Constantinople. The colour of Cairo is something that the traveller never forgets, with its panorama of human life which never ends; the tens of thousands, hundreds of thousands, of lives which nothing seems ever to perturb; the glow of the city in the sun from the height of the Citadel, with its miles of domes and minarets; the population moving like ants on a hillside, with the river which brings life to Egypt winding in the background; and far beyond, ten miles and more from where he stands, the Pyramids and the desert. One wonders if there are six scenes in the world so vast, so solemn, so thrilling as this city on the desert edge, in the glare of the noonday sun.

Cairo itself is wonderful. Only a great artist or a great writer could hope to give you some suggestion of its colour and its humanity. You are not surprised to be told that in those bulrushes Pharaoh's daughter found Moses; your surprise is that Moses is not there. You wonder if that group of Bedouin Arabs in the desert are

Joseph's brethren; for all the change that has taken place they well might be.

Hawks fly past you as you walk in the street, buffaloes draw carts and ploughs, white donkeys and black ones bear half the burdens of the town. The faithful Mohammedan prays in the field; the unfaithful cries "Backsheesh!" as you pass. The women hide their faces behind thick and ghastly veils; the children alone seem even as you and I.

THE GORGEOUS BAZAARS PACKED FROM MORNING TILL NIGHT

These wonderful bazaars one can never describe, with their *thousands* of sellers and seemingly no buyers: packed with everything in the world that nobody wants; with the most appalling things to eat and the richest things to wear; with the gaudiest and most miserable jewels; with shoemakers, polishers, tailors, jewellers, coffee-grinders, and a host of busy folk working in the doorways, or in the open fronts of shops; with every kind of work going on before your eyes; with the filthiest hovels on earth packed with gorgeous colour.

And the houses of this motley multitude — do they reach to the sky? And the pavements — are they the factories of Egypt? At every turn some little group is busy roasting chestnuts on the curbstone even at midnight; making coffee for the passers-by on the pavement; displaying their rings of bread and plates of strange confections on the dirty ground.

See the white donkeys with their blue necklaces, the crowds of cows and buffaloes and camels in the road; hear the cackling hens in the shops, the stray sheep and goats in the busy streets. *Feel* the misery of these happy people. Smell their streets and shops. Escape, if you can, from the heap of fish in that window, from the basket of onions in this, from the carcases in that butcher's shop. Turn the corner and see their tobacco shops, the daintiest imaginable. Step inside their mosques; put your feet into their yellow sandals and see them at their prayers. Climb their steep hill to the Citadel and see the glory of Cairo, the wonderful, unmatched, and unforgettable panorama of a hundred square miles.

THE SCENE UPON WHICH THE SUN HAS SET FOR CENTURIES AND CENTURIES

See Father Nile flowing, as he has flowed ten thousand years, still bearing a prehistoric craft past great palaces and banks lined with palms; with the dim background of the distant desert rising against the sky, the great Pyramids of Ghizeh, ten miles distant, plainly seen, and those of Sakkara, more distant still, looming beyond.

Stand here on the Citadel and watch the sunset over it all, and remember that the sun has set over it for more centuries than you can count years — unless you are getting old; that in the plain before you empires have been born, empires have been lost.

People the arena with the great immortals — Julius Cæsar, Mark Antony, Cleopatra, Moses, and the Pharaohs; and then — then walk slowly down the hill, see the human relics of this great greatness, and wonder what life and the world means. Take a carriage at the bottom, and drive ten miles. Three miles bring you to an avenue lined with trees — "the avenue that never ends," and about you are oranges, bananas, and dates in the gardens, and buffaloes at work in the fields, led by men in long blue robes.

THE GREAT SHADOW THAT CREEPS ACROSS THE SAND

But let them pass. Ahead, just in front of you, at the bottom of the way, stand the Pyramids. A mile goes past, and then another, and another. Still more miles pass, and more — and still, in front of you, these great things rise. Then at last the desert, the greatest structures that were ever built in stone, and the strange, wonderful Sphinx.

We are at the Pyramids, the most famous spot for travellers in all the earth, and we watch the shadow of the Great Pyramid — the greatest of the three — creep along the sand. As we sit in the sand, looking at this huge thing, with neither beauty nor usefulness to plead for it, it is hard to think what we shall say about it. The sun shines down on it to-day as it shone on

THE GREATEST MONUMENT ON THE EARTH

The Pyramids, 6,000 years old, standing in the sands as when Abraham must have seen them

The six-mile avenue of acacia trees leading from outside Cairo to the Pyramids

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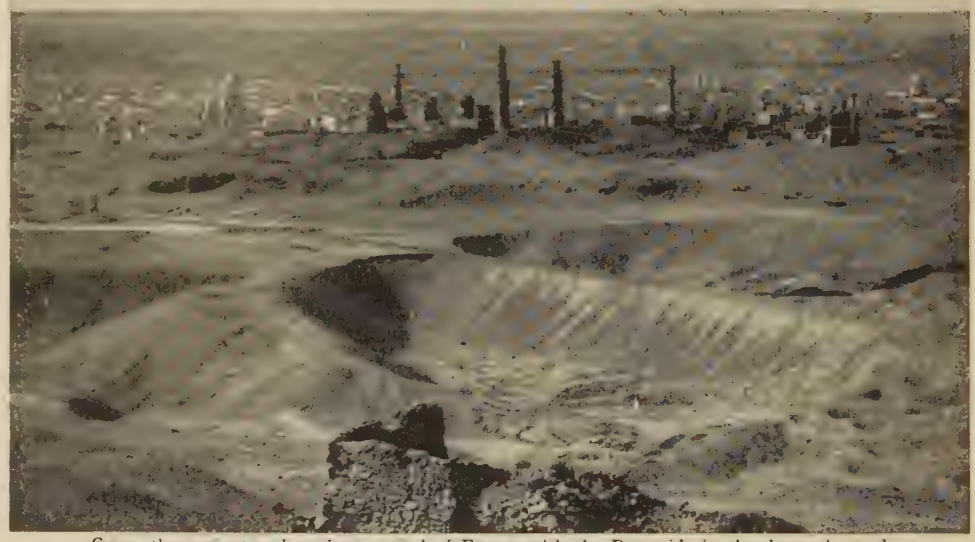
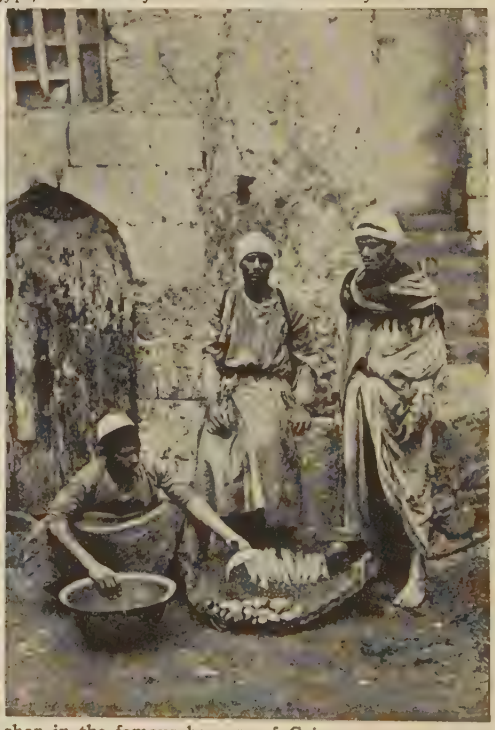
CAIRO AND HER STRANGE BAZAARS



Cairo, the ancient and modern capital of Egypt, with the Pyramids in the desert beyond



A confectioner's and a fishmonger's shop in the famous bazaars of Cairo

The great Arab university at Cairo, where tnousands of boys study the Koran all day.

Arabs drawing water from the Nile with the schadouf, a sort of see-saw with buckets.

it when Abraham and Moses looked at it, and a thousand years before. The moon looks down on it to-night as on that night when a mother brought her Child down into Egypt to flee from the cruelty of Herod.

THE USELESS LABOUR OF A HUNDRED THOUSAND SLAVES

The Great Pyramid is the greatest monument ever set up on the earth, and the only monument on the face of the earth which looks to-day, at any rate from a distance, almost exactly as it must have looked 6,000 years ago. It is less useful in the world than a pin. And yet we sit in the sand and gaze at it with wonder, for it speaks of a time that can never come again in the world, of a time when a man could chain a hundred thousand men and drive them to labour like beasts of the field.

For twenty years a hundred thousand slaves worked to build this single pyramid, the greatest of the three that rise from the sand near Cairo; and they made this pyramid, which was merely to hold the dead body of a king, nearly three times as big as St. Peter's in Rome, and fifty feet higher. Its foundations are set in thirteen acres of sand, and the stone it contains is nearly 90,000,000 cubic feet, or enough to make a narrow pathway, a foot wide, two-thirds of the distance round the earth.

THE DARKNESS INSIDE THE GREAT PYRAMID

A few miles across the sand lies Cairo, and through Cairo runs the Nile. Six hundred miles up the Nile is the great Assouan Dam, 1¼ miles long, 90 feet thick at the bottom, 90 feet high, and 20 feet thick at the top; and this huge Nile dam, holding up enough water to make the desert of Egypt blossom as the rose, has just about a quarter of the quantity of stone that is piled up in this great pyramid!

It is hard to understand the feeling which leads the traveller to climb this monstrous thing, a perilous and difficult climb, needing two or three men to help, and taking hours; it is easier to persuade oneself to go inside, but he who has once been in will surely never wish to go again. A small hole, which exactly faces the North Pole, leads into a long, low, descending passage, through which three Bedouins lead us into this dark and terrible place, and we fumble on hands and knees, and climb up slippery slopes, and walk along narrow ledges, and are slung through holes until the darkness and the weirdness are almost more than we can bear.

And, with a sigh of infinite relief, we reach the little chamber in the very heart of the Great Pyramid, with the tomb of the builder in the centre of the floor and with millions of tons of masonry above our heads — enough of it, men say, to have hidden away miles and miles of galleries such as we came through, and more than three thousand chambers such as this in which we stand.

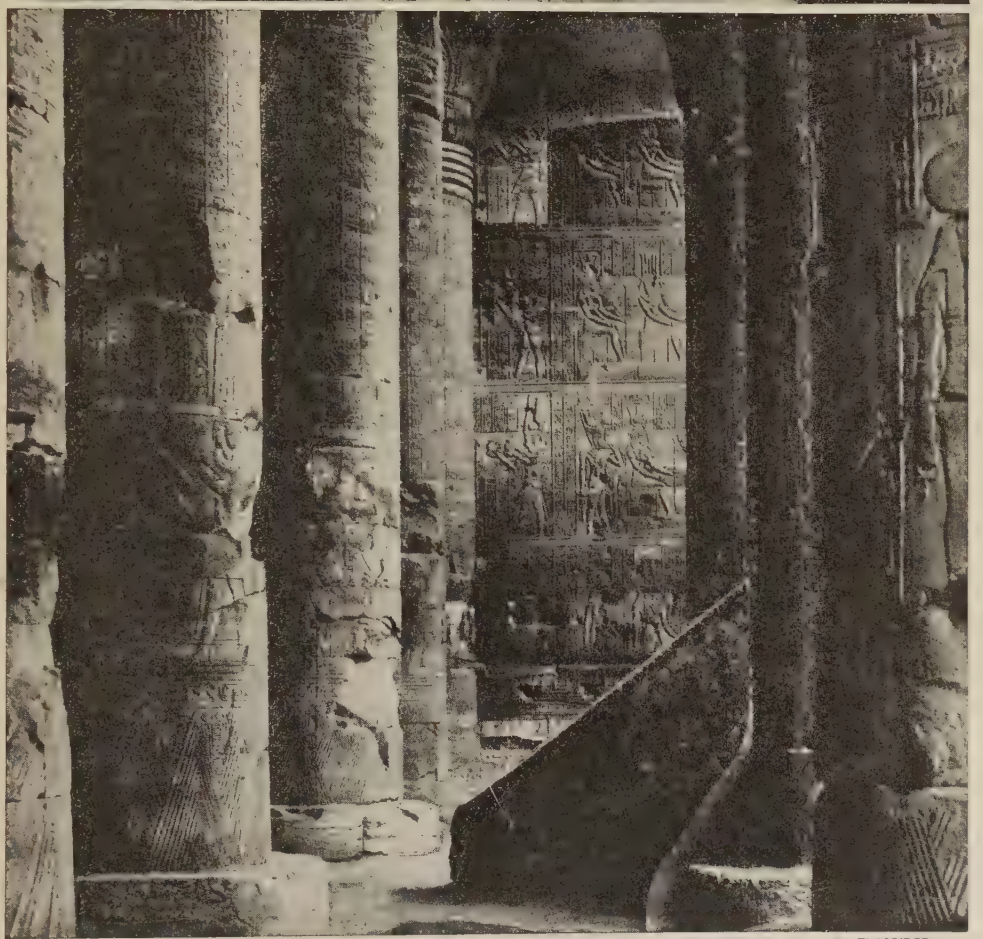
THE RIDE TO THE PLAYGROUND OF MOSES

An overwhelming thought it is, a terrifying place it is to stand in, and all that we have in the world we would give for the breath of air that lies beyond these dark winding passages, hundreds of feet away. Our Arab guides know it, too, and this place and this moment they choose to squeeze from their victim as much of his pocket as he will unwillingly let go. And the traveller pays, takes up his candle, and gropes his painful way back to the desert and the sun.

He is glad to mount his camel, to ride quickly by the ugly Sphinx, which, if he is wise, he will come again to see by moonlight; and on he rides, across twelves miles of sand to Memphis, through the lovely groves of palms which rise from the playground of the little boy Moses, whose home was here in the days when Memphis was a great town. One of many wonderful rides it is that the traveller takes from Cairo, and always he comes back to Cairo as to another world.

But it is not Cairo, even with the Pyramids, which most moves the traveller who comes to Egypt for the first time. He is loth to leave it, glad to come back to it, and never for a moment lets the spell of it go. But Cairo, after

HOW THE GREAT TEMPLES WERE BURIED



THE BEAUTIFUL TEMPLE HIDDEN IN THE EARTH FOR CENTURIES AT ESNEH

These pictures show how the temples of Egypt were buried in the earth and dug out again. The road outside this temple at the village of Esneh, on the Nile, is now level with the pathway seen at right of top picture, but when the temple was built the road must have been level with the floor, as below. Inside the temple has been excavated; outside is still covered by earth. The way in is down the steps.

WHERE MOSES PLAYED AS A BOY

A desert oasis in which majestic palm trees look down upon mud houses

The glory of the towering palms at Memphis, where Moses is said to have played.

THE RIVER THAT GIVES LIFE TO EGYPT

CAMELS ON THE BANKS OF THE NILE AT ASSOUAN

WATER-CARRIERS FILLING THEIR SKIN BOTTLES FROM THE NILE

THE MOUNTAINS IN WHICH THE KINGS OF EGYPT LAY FOR THOUSANDS OF YEARS

FOR CENTURIES THE KINGS OF EGYPT LAY HIDDEN FROM THE WORLD IN TOMBS CUT DEEP DOWN IN THESE MOUNTAIN FASTNESSES, NO ONE DREAMING OF THE WONDERS HIDDEN HERE UNTIL A TOMB WAS PIERCED ONE DAY BY THE ACCIDENTAL STROKE OF AN AXE

all, in spite of itself, is of this world, and there are great cosmopolitan cities elsewhere. It is when he takes the train from Cairo at half-past six in the evening, and steps out of it at Luxor, at half-past eight in the morning, that the traveller feels that he is in another world.

THE SLEEPING KINGS IN THE DEPTHS OF THE MOUNTAINS

Under his feet lies Thebes. Buried beneath mud huts and desert sands, the thud of a hundred axes, the tread of camels with their burden of earth, the incessant plodding of an army of excavators digging up spadefuls of history, come to him like an echo from the lost city that was once the capital of an empire. Before him rise the impressive columns of the temples of Luxor, from which, 3,000 years ago, an avenue of sphinxes over a mile long led to the great temple of Karnak. He flings his guide-book down as he gazes on these vast remnants of an empire which was great before Greece and Rome were born. It is nothing that this courtyard is 400 feet long, that those columns weigh a hundred tons each. It is everything that here sat Rameses, that here came Alexander, that here was the heart of the world in an age of which his mind cannot even think, that the stones rising to the sky from his feet were placed there by the greatest builders that the world has ever known, thousands of years before the foundation stones of the Capitol, at Washington, were laid.

Who shall describe the glory of the Tombs of the Kings? Surely nowhere in the world is the sublime so near to the ridiculous as these mountain tombs of Thebes to the donkey-boys, who walk to them daily and see no marvel there.

THE MARVELLOUS TOMBS WHICH MAKE US FORGET THE PYRAMIDS

"They think we are mad," said one who knows them well, when I asked him what the donkey-boys think of foreigners coming to see the tombs and temples of Thebes. They would sell us any fragment of any tomb, any carving from any wall, any head of any figure, any scarab or mummy or vase fifty centuries old, for five piastres, or, if we protested that it was too dear, for three. And yet these tombs are like nothing else in the whole earth. The Pyramids are ordinary. Westminster Abbey is a child's toy compared with these amazing chambers of the dead.

Crossing the Nile from Luxor, an hour's ride in the desert reveals the valley of the tombs. For hours, for days, perhaps, we may ride over them and not take the same road twice. Deep down in the heart of these mountains, in spacious chambers fit for kings to live in, the kings of Egypt lay in their coffins.

Think of the most impressive place where all that remains of a king of men can be laid — of the heart of Livingstone, in the heart of his own Africa; of Cheops, in the terrible loneliness of his Great Pyramid; of Cecil Rhodes, at the summit of the mountain from which he looked down upon a continent; of Mohammed at Medina; of Napoleon, of Washington in his country home, of Nelson, of Wellington, under the very pavements of their country's capitals.

THE LITTLE BOY WHO SLEEPS NEAR A KING

And none of these resting-places of immortal men can be likened, for an impressiveness that is thrilling and overwhelming, for a great silence that can be felt, for an imagination that has in it poetry, and music, and terror, and prayer, and strength, and wonder, to the graves of the dead kings of Egypt.

Hundreds of feet deep in the mountains, through chambers cut in the solid rock, within sculptured walls bearing the history of their lives, as rich in colour as if the paint had dried upon them yesterday, Amenophis II. lies in his coffin as his people left him there three thousand years ago. In a smaller chamber, among the dust on the ground, lies a beautiful woman, her black hair falling over her shoulders, who played, we are sure, with the princes in the king's palace 1,500 years before Jesus Christ was born. And as we gaze upon her face, forgetting that thousands of years have passed, we wait for her to turn in her sleep.

We came to Luxor by train; let us go back by boat. From Luxor we take boat to Assouan, and see the great Nile

OPENING THE TOMBS OF THE PHARAOHS

The Rocky Valley at Thebes, where men are still searching for the tombs of the kings

Opening the tomb of a king who has slept in the mountains for over 3,000 years

WHERE THE KINGS OF EGYPT LIVED

The Nile at Luxor, once known as Thebes, the seat of the empire of the Pharaohs

The splendid columns of the ruined Temple of Luxor, as they stand to-day

dam, and at Assouan our boat turns round and sets our faces homeward. Six hundred miles down the Nile is Cairo, and slowly down the great river we go. Here on the banks as we pass is Egypt at home. Here are the mud huts of to-day; here are the broken temples of yesterday. It is the land of contrasts.

Never have so much change, so many varied scenes, so many aspects of life itself, so many types of people, such an endless transformation of human and natural things passed in so short a time.

It is like a cinematograph, throwing upon a screen, all in an hour, every kind of life in every part of the world in any age that has ever been.

THE VAST ETERNAL THRONG THAT LIVES AND MOVES ON THE BANKS OF THE NILE

And we sit on donkeys or on camels, or on the sunny decks of steamers, or stand in mud houses, or lie under palm-trees, or rest in great temples, or look out from trains, and see this great world move past — a vast, eternal throng. If you turn to your map of Egypt, you will find, lost on the banks of the Nile among sugar-canes and palm-trees, a place called Edfou. We have just left it, climbing to the height of its great temple, tramping its dusty streets, and parching with thirst at the very sight of its mud town. But it is not of these things that I would give you a picture if I were skilled with brush or pen, and if this burning sun — which fascinates me, though it scorches me — would let me be.

In the background from our boat stands the temple, the best preserved of all that we have seen, standing as the Ptolemies built it before the world had ever heard of England. A dusty lane leads from the landing-stage to the mud-built town, with the minaret outstanding to remind us that the things of this world pass away. Women and girls are coming with their water-pots — those wonderful things which they carry on their heads as we carry hats.

THE SIGHTS AND SOUNDS IN THE FIELDS OF EGYPT

At the riverside a group of women are busy, washing. Some of them are washing themselves — scrubbing their black legs till they are almost white; but most of them are washing their robes, and spreading them out on the rocks to dry. Behind them stand a dozen donkeys, with donkey-boys and dragomans, half a dozen boys asking for English books and one or two for backsheesh, and a motley crowd of folk — white, brown, and black — in black robes, white robes, and blue robes; in black turbans, white turbans, and blue turbans; and in fezzes of every colour.

In the shade of the hill sit four splendid Arabs. Over the hill come two camels, laden with stuff from the quarry where a dozen natives are excavating an ancient temple. In a moment the camels are lost in a cloud of dust, which comes and goes as if it were a speck in a hurricane, though the wind is as calm as the Nile. Along the bank the schadoufs are working — the quaint and clumsy water-carrying instruments which still, as for thousands of years back, carry the waters of the Nile into the fields around. In these fields buffaloes are ploughing, sugar-cane is growing, palm-trees rise in the distance; and beyond it all lies the range of mountains which never break.

THE BOY WHO LOOKS TOWARD MECCA

As our boat leaves this stopping-place, a fine Egyptian gentleman, the Sheik of his district, lands, amid the salaams of the people, the crew break out into the plaintive hymn which marks the setting off of every boat and its arrival, and our steamer looks ahead, to the sailing boats that look like poetry far up the placid Nile. And on, and on, and on we go, through the wheat-fields on one side and the desert on the other, with no sign of life save the naked men at the schadoufs, and now and then an odd mysterious figure in a flowing robe, who seems to be lord of the world. It is as if noise and strife and toil were dead, and the beginning of the world had come. There, on a boat, as we pass, a boy looks to Mecca and prays.

For him, too, the world was made; for him the sun shines and the seas roll. He is of a race of men before Egypt was, and after Egypt is forgotten. He is your little brother, and mine.

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CONTINUED FROM PAGE 5786

A DAY IN A LION'S LIFE

WHEN we speak of a day in a lion's life, we must take the whole twenty-four hours, for night is the working time of the king of beasts. He is not one of the home-making animals of which we have read. He loves marshy country where there is abundance of long reeds or high grass, in which he can crouch. Failing that, he seeks the thick, thorny bush, where he can sleep away the sunlight without being disturbed. He is not lazy, unless overfed. During the day he may wake up and have a romp with his wife and children, while if the day is cloudy and overcast he will roar from time to time, but not with the same violence as at night.

The day passes, the sun sinks from sight, night descends upon the earth. The lion gets up and lopes off from his lair out into the open. He can see well in the dark; nearly all animals and many wild birds can. The only thing he really fears is man. Therefore, our lion feels himself king of the night.

As he walks or trots along, he puts his head low, brings his mouth almost to the earth, and roars. A music master ought to love a lion, because it is such a master of the art of increasing and decreasing sound. There is no sheet of music printed for lions bearing the words crescendo and diminuendo to tell them when to increase their note and when to make it gradually softer. But the lion knows how to do it without printed instructions. The first roar is comparatively soft, the second is louder, the third is louder still, and the fourth makes the very earth tremble. The sound of later roars gradually grows less and less, ending off almost in a sigh. The beast's habit of putting its head low makes the sound travel far along the ground.

The roar of one lion calls forth the roars of others. Men lying out in camps tremble with fear; wild animals out feeding are struck with panic and gallop hither and thither, not knowing which way to escape the danger which threatens them. As likely as not some frightened antelope will gallop right into the jaws of a lion, or so near to him that he has but to spring to capture it.

If he has to make a choice of food, he will prefer a zebra, because that animal's flesh is covered with soft fat which the lion loves. Next to the zebra he would prefer a dead hippopotamus, which is still more fat. He will not tackle a live hippo, for that monster, though peaceful enough,

is too strong for a lion to manage. Next in favour will come a giraffe or an antelope. He likes the flesh of the buffalo, but buffaloes are terrible fighters, and can actually at times kill a lion.

Should all these fail, then there are the domestic animals of men. We will say nothing about man himself, for the lions which deliberately attack men without being first attacked are rare. When they do take to this terrible work, however, they are more to be feared than all the other animals put together, the tiger alone excepted.

THE KING OF THE FOREST

"Now for a zebra," says the lion. But the zebra knows its danger. It is up and feeding at night, with giraffes and gnus in its company. It knows as well as we do that there is no other animal which can hide its great body in such small space as the lion; that no other animal, when it springs, comes with such dreadful and unerring force. So the zebra never goes near bush or grass or reeds big enough to conceal a lion. Therefore the lion has to conspire with its friends or family. The confederates hide in different places, and, springing out one after another, drive the zebra this way and that, until finally it comes near enough to be caught by the last hidden lion. A single bite from the lion, accompanied by a stroke from its great paw, and the sufferings of the zebra are ended, and the lion has its meal.

WAITING FOR DINNER

The lions which have thus combined to catch a zebra no sooner secure their prey than they quarrel over it, and often the rest will be driven away to seek other food while the strongest remains to enjoy the meal. The lion eats his fill, then goes to a pool for water, drinks, and returns, just as the sun lights up the sky, to sleep in peace. As he leaves the remains of the zebra or giraffe which he has killed, stealthy figures steal out of the shade. Jackals have come to eat what the lion has left. Generally the lion takes no notice of them, but if he has left much he may return and drive off the jackals, so that there may remain a meal for himself for next day. The lion does not make a kill every night. Sometimes he has to fast, and the rest does him good. It is in the daytime chiefly that men meet the lion. They stumble across him as he lies at rest, sleeping off the effects of his last meal and send natives or dogs in to rouse him from his rest.

HIS MAJESTY OF THE DESERT — THE KING OF BEASTS GOES FOR A WALK

Night is the working time of the king of beasts, but often the lion will wake up in the day and romp with his family. In this picture we see the lion taking a walk. On such a walk, especially if the day be gloomy, the lion will fill the air with his cries, and make the country resound with the roar that brings terror to man and beast.

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Out he goes very reluctantly. We are not at our best if roused for a crisis in the middle of the night, and the lion is at his worst when called up in the middle of a bright day after a heavy meal a few hours before. With a snarl and a roar he tries to get away. But he will kill a dog if pressed, or, if wounded, will turn and charge, though a hundred men be against him.

A PAIR OF YOUNG LION CUBS

He is grandest and most terrible when the spear of a savage wounds him. The natives try to surround him. But he makes for the mass of them, and lands among them. And with every bite and with every blow of his paw he kills a man or maims him for life. That is how the king of beasts can fight when he is driven to it. Generally, however, he will not attack man.

How is it that, as all animals drink at night, they do not meet the lion at the pool? Sometimes they do.

We might expect that the lion, knowing the animals *must* drink, would always lie in wait at the pools. But the animals would soon realise the danger there and desert that part of the country.

THE NEXT STORY OF NATURE IS ON PAGE 5925.

A FINE LION RESTING AFTER A MEAL

THE LION IN SEARCH OF FOOD AND DRINK

A HUNGRY LION AND LIONESS WATCHING A CARAVAN PASSING ACROSS THE PLAIN

A THIRSTY LION AND LIONESS KEPT AT BAY BY A CROCODILE

The bottom picture is from a painting entitled "Forced Abstinence;" reproduced by permission of Messrs. C. E. Clifford & Co.

A SNOWSTORM IN ENGLAND

A SNOWSTORM is never, in the country, quite so bad as it looks through the window.

Its worst moment is, perhaps, when you stand in the porch trying to shut the hall door amid a whirl of wind and snow, mixed with dead leaves and water-drippings from the creepers. But with stout boots and gaiters, collar pulled up to the ears, and cap pulled down to meet it, with hands deep thrust into waterproof pockets, and head bent to the slope of the flying flakes, you can stride heartily into the open.

A throng of birds — thrush and blackbird, robin, tit, and hedge-sparrow — fly together from the food put for them in the shelter; and what a babel the sparrows in the shrubbery make!

Another stretch of blinding, open country brings you to the park hedge, where you can look down a comparatively quiet vista, dotted with partridges and small birds. A group of ragged colts, with manes and tails streaming with the snow, come galloping round the wind, glad to see a human creature moving in a white world that they do not understand; but by the barn stands an old horse, with patient head bowed almost to his knees.

Through the driving veil of snow each clump of trees looks weirdly pretty, the twigs and branches traced in sugar-work against the leaden sky. And, talking of sugar-work, here comes Father Christmas! No, it is only Billy Horny with a cartload of turnips. He agrees, however — with stooping head under his snow-crowned hat, and one eye shut against the flying snowflakes — that "this is really something like winter."

And so you pass, watching the "small birds" zigzagging out like snipe from the hedge's shelter. It is not their intention to fly crookedly; but collision, beak first, with a large snowflake is a serious matter for a little bird whose eyes are only half an inch apart.

Even the stout partridges, like clusters of black knobs on the white ground, have to shake their heads when they are trying to look at you with one eye, and a snowflake hits them in the other. And if the brown partridges look black against the snow, the sea-gulls, which seemed so like a snowstorm at play themselves as they whirled behind the ploughman yesterday, have sunk to dirty grey as they beat in melancholy procession over the wide field to-day, seeking in vain for the long brown streak of the last-ploughed furrow.

Only the peewits, plaintively protesting as they rise down the lines of the snow-crested turnips, show clean contrast between each broad, black wing and its snowy lining, looking white even against a horizon veiled with drifting flakes, as they curve round to alight behind your line of march. This brings you past the hurdled space among the turnips, where the sheep cough sadly as they munch mixed root and snow.

From turnip-field you pass to stubble, where myriad larks arise before your steps, skirting the meadow, whence a long-billed curlew, rising hurriedly, drifts into the wind.

By the trout-stream, under whose sheltering bank blackbirds and wrens are sharing the dinner of the snipe, is a covert, and here is a multitudinous twitter of small birds, punctuated by the cheery "twink" of the chaffinch, and the greenfinch's melancholy "chee-wee" for the wife whom he has missed in the storm. From here the long, high hedge that shelters you comfortably homeward again is crowded with many thrush-birds; and at every step of your advance it fires out volleys of song-thrushes and blackbirds, who fly hither and thither, chattering in complaint because they must leave the berries, when berries are so few and food so scarce.

At every step, too, you hear the redwing's faint note of protest, and the querulous "chak-chak-chak" of the fieldfare. Just a few days of snow and these helpless little birds would be dying in their thousands; no wonder that their winter cry seems always like the echo of a dying world.

CONTINUED ON PAGE 5925.

WHEN THE WORLD IS WHITE WITH SNOW

Out for a walk in the snow: a winter's morning in the village

The silent beauty of the fields: a scene in the highlands on a winter's day

Top picture is by Sydney Kendrick; lower one by Sidney Pike. Published by permission of Messrs C. W. Faulkner, Limited

THE MEETINGS A KING COULD NOT STOP

"THE MEETING HOUSE," FROM THE PAINTING BY FRANK CRAIG

GEORGE FOX, THE FOUNDER OF THE QUAKERS, PREACHING IN A TAVERN

The Quakers were bitterly persecuted when they began to hold meetings, and Charles II. tried to stop them. But the meetings went on, and the sect spread over England, and later into parts of our country.

Swarthmore Hall, near Ulverstone, the home of Margaret Fell

CONTINUED FROM PAGE 5799

MARGARET FELL THE QUAKER

It was a winter's day in the year 1652. Across the sands of Morecambe Bay the figure of a man on horseback could be seen, coming from the direction of Lancaster, England.

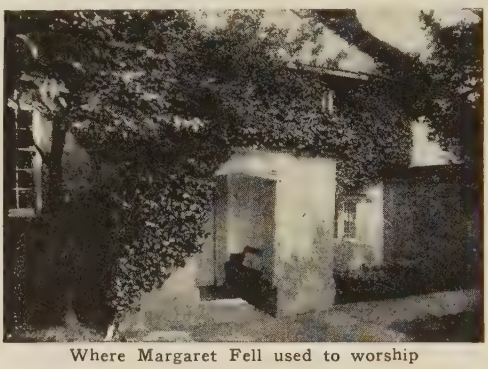
The rider was Judge Fell, returning from his duties as judge on the North Wales circuit, and making for his home at Swarthmore Hall, near Ulverstone. As he drew nearer, parties of gentlemen went out over the sands to meet him. They had news to tell him. In his absence a religious teacher of extraordinary power had been visiting his house, and holding meetings there; his wife and family were all "bewitched" by the stranger.

Somewhat alarmed, and greatly annoyed, the judge hastened to his home. Then he found out what had happened. The extraordinary visitor proved to be George Fox, the founder of the Quakers. Arriving at the Hall in the absence of the judge, he had been hospitably entertained by the judge's wife, Margaret Fell, one of the most delightful characters in history. He held meetings at the Hall, and the mistress herself, and many of her household, were "convinced of the truth," as preached by him. It was therefore with some trembling that she looked forward to her husband's return. Any may think," she says, "what a condition I was like to be in, that either I might displease my husband or offend God." But she was of the stock of the martyrs, being descended from Anne Askew, who was burnt at the stake in 1546. At all costs she must hold to her convictions.

The judge, however, was a broad-minded man, full of common-sense. As he talked with George Fox and his Quaker companions he became impressed with their reasonableness and honesty of purpose, and his irritation passed away. On the following morning the minister of Ulverstone came to warn him against these dreadful Quakers, who were "turning the country upside down," but the judge sent him away, and hearing that there was a difficulty in finding a place for holding meetings in the neighbourhood, promptly said to George Fox: "You may meet here."

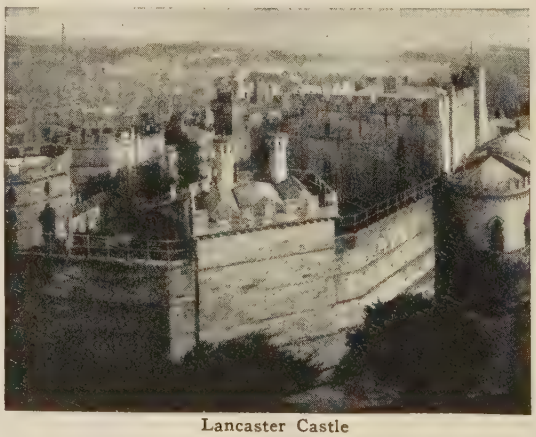
From that time forward Swarthmore became the centre of Quakerism in the North of England. It was a home for all the travelling preachers, to which they could repair in the short periods they were out of prison. Margaret Fell became "the mother of Quakerism." The judge himself never became a Quaker; but though remaining to the end a strong Churchman, he extended his sympathies and help to

the persecuted sect. What an interesting sight it must have been — the Quakers holding their assembly in one room, and the judge sitting quietly listening in the next with the door ajar! In one room mother and children were worshipping with the rest; in the other the father, and head of the household, was sitting alone.



Where Margaret Fell used to worship
The Friends' Meeting House at Ulverstone

Thus six years passed, husband and wife being rather united than divided by the new experience, until in 1658 — one month after the death of Cromwell — Judge Fell died. By his death his wife lost not only "a tender husband" but a powerful protector. The Quakers, too, now that Charles II. had come to the throne, began to suffer terribly. George Fox was arrested at Swarthmore and flung into Lancaster Gaol. Then Margaret Fell went up to London to plead before the king for his release, and that of all imprisoned Quakers. Standing calm and unmoved amid the sneers of the Court, she pressed her suit upon the king, and after a time she was successful, but still fiercer persecution followed.



Lancaster Castle
Where Margaret Fell was imprisoned for holding services

She herself was not to go unscathed. On her return to Swarthmore she was arrested, and charged with holding religious meetings in her house. Would she promise to give them up? No. Not if she were to be instantly set free on doing so? No. If she refused, the punishment would be terrible — forfeiture of all her property, and imprisonment for life. No matter. "I must offer my life, my all, if it be required of me." They gave her three months to think it over, but her purpose never wavered. And so she was sentenced to lose all her belongings, and to be imprisoned for life. As she left the court she said, in calm and resonant tones: "Although I am out of the king's protection, I am not out of the protection of Almighty God."

For four and a half years she languished in Lancaster Castle, in a place — as she wrote to the king — "where storm, wind, and rain enter, and which is sometimes filled with smoke, so that it is much that I am alive, but that the power and goodness of God hath been with me."

At the close of that period the efforts of her friends procured her release, and she immediately set out on a tour of inspection of the prisons of England. So bitterly had she suffered during her own imprisonment that she resolved to do all in her power to improve the condition of other prisoners. She was a prison-reformer before Elizabeth Fry. As she travelled about she came to Bristol, and here, in 1669, occurred one of the great events of her life. She married George Fox! Let George Fox tell the story of this in his own quaint words:

"I had seen from the Lord, a considerable time before," he wrote, "that I should take Margaret Fell to be my wife, and when I first mentioned it to her she felt the answer of approval from God thereto. So after I had acquainted her children with it, our intention of

marriage was laid before Friends, to their full satisfaction. Afterwards a meeting being appointed on purpose for the accomplishing thereof, in the public meeting-house at Broadmead, in Bristol, we took each other in marriage, the Lord joining us together." The bride was now 55 years of age. After only a week's "honeymoon" they parted, she going back to her work in the north, he to his travels and still further imprisonments.

For six years they saw little of each other. She was made to suffer a second imprisonment in Lancaster Castle; he went to the West Indies on a missionary tour, and was imprisoned at Worcester soon after his return. But in 1675 he was released, and came to Swarthmore, where he stayed for two years. These were happy, peaceful years.

George Fox was soon off to Holland and the Continent. Persecution broke out again — for the last time — and the patient mistress of Swarthmore was once more a sufferer. She was fined for speaking at a meeting in her own house, and when she refused to pay they took thirty head of cattle from her. "Tell them to be kind to the poor beasts, Edward," was all she said to her bailiff. And then, turning to those about her, she added: "We must take cheerfully the spoiling of our goods, for we have in heaven a better and an enduring substance."

Not long after, in 1691, George Fox died, worn out with hardship and imprisonment. She was not with him at the end. He died in London, while she was at Swarthmore. He had lived to see his work established, and the day of persecution past. As for her who had shared so much of his lot, through good days and through bad, she survived him by twelve years. She died on April 23, 1702, in the eighty-eighth year of her age. Her last words were, "I am in peace."

They laid her to rest among her native hills, in a small green enclosure not far from Morecambe Bay. No headstone or monument marks her grave. She needs none. She lives enshrined in the hearts of thousands to-day, men and women to whom the world is a fairer and brighter place because she has lived.

AN EXTRAORDINARY MAN

CLEVER men are not always great men, and we must not be disappointed to find that Benvenuto Cellini, the famous goldsmith, sculptor, and engraver, has to be added to the list of talented men who did not live good lives. He was an extraordinary man, extraordinarily clever, but extraordinarily wicked.

In charity to his memory, we must remember that he lived in the bad old days, for he was born four hundred years ago in Florence, where, in spite of the fame of the city as a centre of art and learning, men used sword and dagger to avenge quite petty quarrels. It was against the law, but the offender could always escape penalty by flight.

He followed the calling of a goldsmith from early boyhood, and this in spite of the fact that his father longed for him to be a musician. Benvenuto learned music — he could learn anything — but drawing and metal-working claimed all his love.

The lad was always getting into hot water, but in spite of all, became known as the best young craftsman of his years, and easily managed to earn good wages. The bulk of his money he sent to his father, whom he really loved, often though they quarrelled with one another.

From the time he was nineteen Cellini became a wanderer. He visited Rome and many other Italian towns. His work made him welcome wherever he went. Cardinals and noblemen were only too glad to employ the young genius who could make for them the finest statues, plate, cups, goblets, medals, coins, and seals, using gold, silver and precious stones with equal readiness, and enriching all his work with a wealth of fancy and beauty such as no other man of the day could rival. No matter what he did, he did it to the best of his ability; and, for the sake of his art, his patrons put up with insolence

The unveiling of Cellini's statue of Perseus, still standing in the streets of Florence

Cellini defending the Castle of St. Angelo during the attack on Rome in 1527

and strange conduct such as no one else would have dared to risk. He became known at the Vatican, and served first Pope Clement VII., and afterwards Pope Paul III.

His passion for travel and adventure took him to Paris, where he was engaged by the king, Francis I., to carry out important work. When at the height of his fame there he departed as suddenly as he had arrived, but not until he had inflicted with his sword grievous injuries upon a man with whom he had had a lawsuit. But that was not unusual. His life was one long chapter of such adventures. He was frequently in prison, sometimes for wounding people, sometimes for insulting the Pope, sometimes for other offences. Each time he regained his freedom, forgiven, or by breaking out of captivity. He was a fierce soldier at heart, so, as the time was one of wars and sieges, he delighted to share in the fighting. In 1527 he helped to defend Rome against a besieging French army, and it is said that he fired the cannon which killed the Constable of France and wounded the Prince of Orange. Never did another artist have such a career of adventures as his. The story of his life reads like some exciting novel, with a bad but brilliant man for its hero. To crown his strange career, this lawless being considered becoming a priest.

CELLINI PRESENTING A VASE TO THE POPE

In the year that he decided this he began to write the story of his life, and the book that he produced is more valued by grown-ups even than his work as an artist. It is not a book which would interest young people, but to their elders it is a wonderful piece of work. He lived in most exciting times, when important history was being made. He cared nothing about anything unless he occupied a prominent position in it.

Some of his tales we know to be false, t. isted to glorify himself; but, in spite of its extravagance, his book gives us a most vivid picture of his age. Everything of historical value that Cellini tells us is only a background for himself. Still, it is valuable and rare, as no other work of the age is, and it is one of the great classics for all time.

In his art, Cellini was a stormy enthusiast. He believed greatly in himself. If anybody said that he could not do a thing, he would simply go and do it, not only because he loved his art, but because he loved still better that Benvenuto Cellini should prove wiser or more skilful than his critics or patrons. A famous incident in his career shows us the man as he was.

Benvenuto had promised to make a statue of Perseus for the Grand Duke of Florence. He prepared an exquisite model in wax, and presented it to the duke, who, after examining the elaborate idea, exclaimed:

"Benvenuto, this statue cannot be cast in bronze; it is not in the power of your art to compass it."

Again and again the duke tried to discourage the sculptor from attempting an impossible task; but Benvenuto's soul was set upon the achievement.

He laid in a great store of pinewood, and when his moulds were ready, filled

his furnace with brass and bronze. Almost as soon as the pinewood was lighted, the flames sprang up to the roof with a roar, and in a few minutes the shop was ablaze. While the frightened workers knew not what to do, a storm of rain drove in from another quarter, and almost quenched the furnace. So hard did Benvenuto struggle against these trying accidents that he was stricken down with a fever, and was carried to bed, expecting to die before the morning. All the time he lay in bed he was crying out aloud:

A SALT-CELLAR MADE BY CELLINI

"I am dying! I am dying!"

While he was in this parlous state a workman entered hurriedly, saying:

"Alas, poor Benvenuto, your work is spoiled, and the misfortune admits of no possible remedy."

All the metal in the furnace was hard.

Benvenuto sprang from his sick-bed, rushed to the shop, and sent for fuel.

"Give your orders," said one of the workmen, "and we will all second you in what you command; we will assist you as long as we have breath in our bodies."

The new wood burned up, and the metal began to brighten.

Benvenuto sent men to the roof to look after the fire, which had acquired new force. Towards the garden he had placed some tables, with pieces of tapestry and old clothes, in order to shelter him from the rain. He was continually shouting to his men, and bestirring them.

"Then," said he, "I caused a mass of pewter, weighing about sixty pounds, to be thrown upon the metal in the furnace, which, with other help, as the brisk wood fire, and stirring it sometimes with iron and sometimes with long poles, soon became completely dissolved. Finding that, contrary to the opinion of my ignorant assistants, I had effected what seemed as difficult as to raise the dead, I recovered my vigour to such a degree that I no longer perceived whether I had any fever, nor had I the least apprehension of death. Suddenly a loud noise was heard, and a glittering of fire flashed before our eyes, as if it had been the darting of a thunderbolt. Upon the appearance of this extraordinary phenomenon terror seized on all present, and on none more than myself. This tremendous noise being over, we began to stare at each other, and perceived that the cover of the furnace had burst and flown off, so that the bronze began to run."

BENVENUTO CELLINI IN HIS STUDIO

But the metal did not run fast enough, and, fearing that some had been lost in the explosion, Benvenuto ordered all his dishes and porringers to be brought to the furnace. Then the metal ran freely, and the statue was cast. What a picture this presents.

ANTONIO'S WONDERFUL LION

On a summer's day in the year 1787, a small peasant lad was flying along the white, dusty road which led from Venice to the little village of Possagno. In both hands he clasped a big lump of clay, which old Pietro, the potter, had given him.

As the boy, whose name was Antonio, came into the village street, several of his playfellows shouted to him to join their games, but Antonio only fled the faster to his own home.

"Just see, mother!" he cried, holding up his clay. "See what old Pietro has given me! What fine castles and birds and flowers I shall be able to make now!"

Sinking down on the floor, the ten-year-old sculptor set to work, never looking at his dinner.

He was too intent on moulding the clay to notice even the arrival of a visitor.

The visitor was his mother's cousin, a very grand person, in his own and the villagers' eyes. For he was head cook at the castle, where the senator, Giovanni Falieri, the lord of Possagno, lived in great state. As a rule, Tommaso always brought delightful scraps of broken meat, but to-day he was empty-handed, for he was much too worried to think of anyone but himself.

"What's the matter, cousin?" asked Antonio's mother.

"Matter enough, I can tell you," was the tart reply. "Just think, the master is giving a large banquet to-morrow night, and has ordered me to invent some decoration for the table that has never been seen before.

"But you're so clever that you're sure to think of something," said his cousin.

"I can't!" said Tommaso irritably. "That's just my misery, and the time is running so short! The master is tired of my castles and dragons in pastry, and of my sugar birds and trees and flowers; even the life-like chariot that I carved out of a turnip, with rings of carrots for golden wheels, doesn't please him now, nor yet the upright clock made in sweetmeats. No; nor the almond-paste crown set with its jewels of candied gooseberries and cherries. Oh, what ever can I do?"

And the wretched man could do nothing but wring his hands in despair.

"Go on thinking, and you'll get an idea at last," urged Antonio's mother, while Antonio himself was much too busy with his modelling to look or even to speak.

"Go on thinking!" cried Tommaso. "Well, if that's all the help you can give me, I'll be off." And he moved toward the door, brushing past Antonio so roughly that he jerked a beautiful little swan, which the boy had just modelled, out of his hand.

"Oh, my poor swan; you've quite spoilt it!" cried Antonio sorrowfully. For the swan had struck against the wall and fallen on the floor in a shapeless heap. "Oh, how I detest you!" added the boy, shaking his fist at Tommaso's back.

"Poor man! He's dreadfully worried to-day," said his mother. "You ought to be sorry that you can't help him, for think how often he brings you cakes and tarts."

"So he does!" said Antonio. And from that moment he was lost in deep thought.

Next morning, at sunrise, he was knocking at the kitchen door of the castle.

"Cousin Tommaso," he said, "I've thought of something that I will make for your master's table, something that no one else has ever seen before. Only give me a big block of butter, and a little room all to myself, where no one can watch me at my work."

"All right," said the cook. "Of course, you'll only waste the butter; still, you may try."

For twelve hours Antonio toiled at the task he had undertaken, Tommaso calling through the door occasionally for news of his wonderful work. Antonio paid no heed to his jeers; but just as the sun began to sink, and the hour for the banquet drew near, he

FROM THAT SHAPELESS MASS OF BUTTER A LORDLY LION HAD ARISEN

flung open the door and displayed his handiwork.

From that shapeless lump of butter a lordly lion had arisen, standing nearly two feet high! Every detail, from the finely moulded muzzle to the tip of his tail, was in faultless proportion.

If Tommaso was struck dumb with admiration and surprise, still more so were the host and guests when this masterpiece appeared on the table as its crowning ornament.

Filled with admiration for his cook's performance, the senator sent for him, and loaded him with praise. To the astonishment of all, however, Tommaso burst into tears.

"Alas!" he wept. "Not I, but another moulded that lion."

"Then fetch him here at once," commanded the senator.

Thereupon, to the further bewilderment of that gay company, Tommaso presently reappeared, pushing a very frightened, ragged little peasant boy in front of him. He was too frightened to lift up his eyes, but from that moment Antonio's fortune was made. The senator apprenticed him to Torretto, the greatest sculptor of the day, and under his care Antonio made such rapid progress that after two years the twelve-year-old sculptor presented his patron with two beautiful baskets in marble filled with exquisitely moulded fruits. These may still be seen in the Falieri Palace at Venice. For the little barefoot lad grew into the famous Antonio Canova, one of the greatest sculptors of the modern world.

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WHERE DOES THE SAND COME FROM?

THE STORY OF SAND, SHINGLE, AND SHELL

LET us take a bucket and spade on to the seashore and build castles with old rocks and mountains. Those little grains of sand which the waves dash hither and thither, which the wind fans away, which a trickle of water carries out to sea, are not older, for once upon a time they were merely as old as the hills; they are mountains and hills and rocks themselves.

Sand did not suddenly come into existence as sand. If we examine it under a microscope, we find that every grain of it is a separate piece of mineral matter. It was formed millions and millions of years ago. It may have been part of sandstone, which is so hard that men make grindstones of it to-day. Yet wind and frost and rain broke up the seemingly invincible sandstone into these tiny fragments, and carried it on the wings of the breeze, or on the bosom of rivers, down to the sea.

Again, our sand may have formed part of great rocks made up chiefly of quartz, felspar, and mica. We can guess at the astounding age of sand such as this, for the rocks into which it was formed could not have come into existence except at a depth of from 30,000 to 80,000 feet down in the earth. In the red-hot workshop of the world these sands were formed, and, under enormous pressure fifteen miles deep in the earth, it was pressed into granite and gneiss.

Nature has no patent drills, no dynamite with which to blast, but she has her tools which bring these deep-hidden rocks to light. Her fiery heat thrusts up countries and continents, flings up mountains on the site of valleys, and so the buried rocks come into view, to be exposed to the wearing action of rain and heat and frost and wind. These powerful agents, which destroy one form of rock and grind it to powder, are capable of making mountains.

Worrying and gnawing, drilling and chafing, they keep cutting down the soft parts and carrying them away, so that the top and side covering of the granite is removed, and what was once a flat stretch, hidden in the earth, stands out at last as a towering height, overlooking a plain from which the upper layers have all been worn away.

As water finds the lowest level, all that is carried off by it must go with it to the lowest level, and the seashore is therefore the place to which the sand is carried. The sand of the shore is only a thin covering, though it seems a little world to us. It is like a layer of dust on a school desk. We need only to apply a duster or a puff of air. The dust vanishes, leaving the wood of the desk exposed. Sand is merely a layer of debris hiding the

rocks below. Along the margin, the sand which has come from the hills and rocks collects.

There are great quantities of sand in the sea near the shore. Some of this is constantly being carried in by the waves, while other sand is carried out to sea. The sands are constantly changing, except where they are very sheltered. Sometimes the sand may drive too far inland, and buries buildings and fields and villages near the coast. This is not uncommon in our own country.

THE WAVES THAT FLING MASONRY ABOUT LIKE PEBBLES

More often, however, it rebels against the masterful sea, and actually masters that giant force. So much sand is brought in by the sea sometimes that it forms itself into hillocks or sand-dunes, and so firmly does it bind itself together that it forms a barrier against the sea which has brought it, and prevents the waves from coming in any farther.

But, as we know to our cost when we bare our feet to paddle, seashores are not always of sand. Too often they are of shingle. Well, our shingle has its history. Many of the stones have been washed in course of time out of the rocks standing by the sea. Still more, perhaps, came to the sea by slow stages, wrenched by ice from far-away hills and valleys.

Slowly, little by little, obeying the unswerving law of gravity, these pebbles were rolled onward to the sea. And there they have been, tossed hither and thither upon the shore. Storm-waves, which can fling about blocks of masonry as if they were corks, treat the pebbles like feathers, and hurl them into the air, so that lighthouse windows, standing high above high-water mark, are smashed by these relics of the mountains and valleys of a land that existed ages and ages before man.

THE ONCE LIVING WALLS OF THE SHORE

The rocks themselves, that stand boldly up, guardians of our coast, tell us of the mighty changes that our world has seen. Some of them were formed in the fiery crucible of the earth, in the blazing heat wherein diamonds are born. Some of them are formed of metals and minerals combined. A bowl of starch which is a sticky fluid at this minute forms a sediment which in an hour will be set hard. Many of our rocks were formed like the starch which solidifies at the bottom of the bowl. But, instead of an hour, it took millions of years to make the change. Some of the rocks were once living animals. Myriads and myriads of tiny shell-fish lived in a sea where the rocks now stand. We find them a thousand feet high in some hills to-day. The white walls of old England, the beautiful gleaming cliffs that all love, were living things once upon a time. They lived and died. They took certain properties from the sea-water to form their limy shells, and when they died their limy shells became converted into chalk to make the rocks and cliffs which are so wonderful.

THE WONDERFUL SHELLS OF WHICH ROCKS ARE MADE

A search in the sand will reveal hosts of these little shells to-day; but though they are of the loveliest shape and design, they are so tiny that we need the help of a microscope to see them. Of such little things are our rocks and cliffs composed. Large shells there are, of course, for the searcher. They have all been habitations of various forms of life which people the sea.

There is not a beach in the land which does not yield a feast of delight for those who have eyes to see the wonders and beauties of these little marvels of creation. All the colours of the rainbow are represented in these dwellings of the humble, and man with all his skill cannot imitate them, so perfect are the tiny ones in shading and in form.

Then we think of the tiny snail-like thing that lived in it, and remember that the same properties in the sea which gave this little beauty its life, its shape and form and charm, give the mighty whale his bulk, speed, strength, and endurance, the shark his power and ferocity, the gorgeous fishes of the coral reefs their hues, and the sea itself its lovely meadows of weed, its lazy living sponges, and those marvellous anemones which mark the dividing line between plants and animals.

WHY DID BABY'S EYES CHANGE COLOUR?

In order to understand this fully we should have to know a good deal about the structure of the eye, as well as about colours. But it is enough for our purpose here to say that the colour of the eye depends upon a structure called the *iris* — a kind of curtain made of delicate muscle-fibres which have the power of contracting and relaxing. In the middle of the curtain is a hole, called the pupil of the eye. When the coloured curtain contracts, the pupil enlarges to allow more light to enter, or, when another set of muscle-fibres contract, the pupil narrows to shut out light.

The colour of the curtain depends upon the kind and amount of colouring matter in its cells. and the way this is arranged.

Now, this colouring matter is liable to change as life goes on, and it does change somewhat from birth, appearing less bright as time goes on, and being most dull in old age. We notice the change most in a baby's eyes because it appears more sudden in them.

WHY DOES COLD MAKE OUR HANDS BLUE?

Even in a healthy person we notice that the colour does vary a good deal. The same person is sometimes red in the face as well as blue in the hands. So we might extend this question and ask: Why does the same person change colour in different circumstances?

The colour of the skin at any given moment depends upon the kind and amount of blood circulating in it at that moment. The blood is the great source of the colour we notice in people. In the absence of enough blood the face and lips look white or pale, or anæmic, as we say, meaning bloodless. When there is a great rush of bright red blood to the surface, as when a person is taking violent exercise, the skin appears red from the expanding of the smallest arteries; when the skin is exposed to severe cold the arteries contract and contain less red blood, while the veins expand and contain more of the purplish, impure blood. Further, as the veins on the hands and limbs are nearer to the surface than the arteries, they are more easily seen, and the blue colour of the blood shows through the skin over them, and gives a general bluish tint when the skin is cold. If the hands be now vigorously rubbed, or exercise be taken to stimulate the circulation, the blueness disappears, because the blood assumes its usual course once more.

WHY DOES A CAT ARCH ITS BACK ON MEETING A DOG?

It is difficult to be quite sure *why* animals do certain things, unless we know whether they do them in their wild state. If we knew that a wild cat would arch its back on meeting a dog, we might safely presume that it was an instinct on the part of the cat for defending itself. The attitude of the cat with its back arched, and its hair more or less bristling at the same time, might suggest to the dog an object of such ugliness as would terrify it; or one might suppose that the cat, in assuming this attitude, is attempting to get a firm grasp of the earth with its feet, so that, by thus stiffening its muscles, it could scratch its enemy with greater force and defend itself in that way.

But there is another explanation which may be more accurate. When a dog seizes a cat, it does so by the middle of the cat's body, and, by arching its back and bringing the two hind feet as near to the two fore feet as possible, the cat may be trying to protect this part of its body.

WHY CANNOT ELECTRICITY PASS THROUGH GLASS?

The shortest answer to this question would be to say that glass is a non-conductor of electricity. But what do we mean by a non-conductor? We mean a substance which will not allow a current of electricity to pass along or through it. This can be tested by an instrument called a galvanometer, which, when we pass an electric current through it, shows on a dial whether there is any current passing or not, and, if there is, how strong that current is. Two wires run from the instrument, and if their ends come together the dial shows the current to be passing. If, instead of this, we make the wires touch something else, we find that the current still passes in some cases, but not in others. Thus, if we take a coin

and put the two wires in contact with it, the current passes. The coin, being metal, acts as a *conductor*. All metals are conductors. But if we take a piece of porcelain, or glass, and put the wires in contact with this, the instrument shows that no current is passing, and these things, therefore, are *non-conductors* of electricity.

WHY DOES A MUTE DEADEN THE SOUND OF A FIDDLE?

Before we can understand this entirely, it is necessary to know what *sound* is, and also a little about the construction of a fiddle. By sound we understand something that we can *hear*, and this is really the effect produced by the vibrations of some substance or other. These vibrations of the sounding substance enter the air and are carried to the organs of hearing, which carry them to the brain, and so make us conscious of the sound. No substance can make any sound unless it be put into a trembling, or vibrating, condition, so we may say that sound is the motion of vibration, impressed upon our senses.

A musical sound, like that from a fiddle, is caused by a regular series of exactly similar vibrations, succeeding each other at precisely equal intervals of time. The little implement known as a "mute" is made of wood, ivory, or brass, and when in position grasps the bridge of the fiddle. By compressing the bridge, the mute makes the vibration of the bridge less free, lessening also the vibration of the strings, so that the sound from them is made softer and altered in quality. The mute interferes with the production of the ordinary full vibrations, and so deadens the sound from the fiddle.

WHY SHOULD WE NOT EAT THE SKIN OF A PLUM?

The skin of a plum has nothing in it of much use to us as a food, so that it is not worth eating; and the skins of most fruits consist of chemical substances which we cannot digest, and that may, perhaps, cause us pain. But the best reason why we should not eat the skin of fruit is that it has been exposed to the air, and contains a host of microbes. It is probably right to say that the business of the skin is to protect the fruit from microbes.

WHAT MAKES A RIVER WIND?

We should naturally expect that a river would flow straight from its source in the high lands or mountains to the nearest point in the sea, and so it would if it had to flow over a perfectly smooth surface, composed of glass, or of anything else of the same structure throughout. But the water has to flow over the land, and this is by no means smooth all the way, nor is it of the same composition all the way. The river flows the *easiest* way. When it comes to an obstacle such as a rise in the ground, it will be turned to one side and flow round it.

But, even when flowing through flat country, a river winds about, and this is because it washes away the soil from the softest parts of the surface and so makes a track for itself, which is followed by the water coming after. This is the "bed" of the river. Where the river comes to stone and rock, it flows over them until it reaches a softer part at the side, when it makes a track there.

WHY ARE THE RIVERS NEVER STILL?

A river is never still because of the great law of universal gravitation, which is that every particle of matter in the universe attracts every other particle with a force in the direction of a straight line joining the two. Now, as far as our earth is concerned, this means that the particles of the earth, and those of the water of a river, are thus acting towards each other, but the earth is the stronger, so to speak, and draws the water downwards to the lowest point.

That is to say, gravitation is acting in one direction, downwards, and this downward force of gravitation is what we mean by "weight." The particles of a river are always being attracted to the earth in this way, and so are always in motion, finally reaching the lowest level at the sea. The rivers, we may say, are always moving because they are always trying to reach the sea, which lies at the lowest possible level, or the nearest point to the centre of the earth, which water can reach.

WILL THE LAST MAN GASP FOR AIR?

It has been suggested that the oxygen of the air is being slowly used up, that the quantity of carbonic acid is increasing, and that in the long run the carbonic acid, which is comparatively heavy, will fill the valleys and low-lying places, so that men will have to climb out of them. And then, it might be supposed, the sea of carbonic acid would gradually rise, driving men higher and higher for the oxygen they need, until at last the number of men would get fewer, and the last man would die of suffocation, gasping for air somewhere on the side of a high mountain.

But usually we find that when something in Nature appears to be going all in one direction, or to be coming to an end, there is something else which compensates for it. That is doubtless the case with the oxygen and carbonic acid of the air. When the quantity of carbonic acid tends to rise, the sea absorbs the extra amount, so there is no fear of our being forced up the mountain-sides; and the green vegetable world is always making new oxygen from carbonic acid. That is part of what is called the "balance of Nature."

WHY ARE ROSES RED?

This is a question which cannot be answered in a single sentence, for the redness of roses depends on many things, and not merely on the roses themselves. No rose is red in pure green light or in the dark; and in a pure red light a white rose is red. Plainly, therefore, we must study light as it reaches the rose from the sun.

We find that white light is a mixture including red. If any rose, or anything else that does not shine of itself, is lit in a light that does not contain red, that thing will not appear red. Roses do not shine of themselves, and therefore the first reason why roses are red is that there is red light in sunlight. But if there is red light in sunlight, why are some roses white and not all red?

The reason is that roses differ in their way of dealing with the sunlight that falls on them. Red rays, as well as all rays of other colours, fall upon a white rose; but it is not red, for it reflects to our eyes all the light that falls on it. As we have seen, if *only* red light falls on it it will be red, for it can only reflect that. But there is something in the red rose which causes it to behave differently with sunlight. Instead of reflecting all the rays that fall on it, it absorbs, or keeps to itself, all the rays that make up sunlight except the red ones. These it reflects to our eyes, and so we say it is a red rose.

WHY DO SOME THINGS BEND AND OTHERS BREAK?

This is a question which sounds as if it should be easy to answer, but really it is most difficult. All the questions about such things as bending and breaking, and stretching and brittleness, and so forth, are of the same kind, and the answers to them depend upon knowledge which we do not as yet possess.

We do not know what makes the parts of any solid thing stick together, and so we cannot possibly hope to explain such facts as bending, brittleness, or elasticity. We can learn something by studying such things as sealing-wax, which will readily bend at times, and will break at other times. In this case we find that the temperature of the sealing-wax makes all the difference.

Such facts as these help us a little. The little parts, or molecules, that make them must be held together differently in different cases. In hot sealing-wax they behave as if they held each other with their arms relaxed, but in cold as if their arms were stiff. That is the only kind of idea we can form of this interesting question as yet.

IS THE BLOOD ALIVE?

As to whether blood is itself alive or not, the answer is both yes and no. Blood consists of a part which is certainly not alive, and of another part which is very much alive indeed. To our eyes, not helped by the microscope, blood is just a fluid, and a fluid cannot be alive. The fluid part of the blood is simply a mixture of a very large number of chemical compounds, food materials, salts, materials for poisoning microbes with, and so on. These are not alive, though our lives depend on them.

But in this fluid there swim unthinkable billions of living cells, so that the blood is certainly alive to that extent. In the blood of a healthy man there are more than five millions of such cells in a quantity about equal to two pins' heads, and the blood of a healthy woman contains nearly five millions in the same space. These cells are of various kinds, red and white. The white cells are, perhaps, almost the most intensely alive of any cells in the body.

WAS THE EARTH ALWAYS 93,000,000 MILES AWAY FROM THE SUN?

Always and never are very big words, and people who use them often are more bold than they are wise. There was not always a sun, nor was there always an earth. Each had its beginning, and there can be little doubt that they began in much the same way and at much the same time. Of late years we have begun to get clearer notions about it, especially because we have learnt so much about the other planets of the solar system, what they are made of, how hot they are, and what is happening upon them.

It seems probable that the earth was formed at about the same distance from the sun as we find that it is now. It was not exactly the same distance, and, indeed, the distance must be slowly changing now; but it seems more and more likely that not only the earth, but the other planets as well, were formed in space from the great nebula that existed before the solar system, at something like the same distances as they occupy now. And at the same time the sun was being formed by the same laws, at a point which was — and still is — the centre of the whole.

WHAT HAPPENS WHEN WE BREATHE?

The air is always pressing against everything and trying to get everywhere. When we breathe we make the chest bigger, and the pressure of the air forces some of it down into the lungs. Inside the lungs the air makes certain exchanges with the gases in the blood, so that when it is breathed out it is different in several ways from the air we breathe in. Breathed-out air contains much more carbonic acid, much less oxygen, and much more water than breathed-in air. It contains various waste particles derived from the inside of the lungs; and it is hotter.

Until the last two or three years it was generally believed that the exchanges of gases beween the air and the blood were just such as might happen from the two sides of, for instance, a thin piece of parchment or blotting-paper. But quite lately it has been proved that such an explanation is not enough. The changes that happen when we breathe could not be carried on without the help of the living cells that line the lungs. These cells are very flat and thin, and it used to be thought that they did nothing but allow the gases to pass through them; but now we know that they pick and choose what shall pass and what shall not. This is the latest discovery in the science of breathing.

WHAT MAKES COLOURS IN THE FIRE?

Light is made of waves in the ether. Different waves make light of different colours. The waves are made by the movement of the parts of the atoms of the thing that sends forth light. Different atoms are differently made, and the "electrons" that make them, move in different ways. Therefore, different atoms produce different kinds of waves in the ether, which means that when they produce light at all, the light is of different colours. We know altogether about ninety different kinds of atoms, and each of them produces a different light. Also the same kinds of atoms may produce different kinds of light at different temperatures.

So now we see that the different colours produced in the fire are due to the various kinds of atoms that are present there at various temperatures hot enough to make them give forth light. Coal contains many elements, and thus a coal fire has many colours. Glowing carbon is red. The yellow flames are due to the atoms of the element sodium. If we see a violet flame it is due to the element potassium; and there is a blue flame produced by the atoms of a gas which is called carbon monoxide.

IF TREES GROW FROM SEEDS, HOW DID THE FIRST SEEDS GROW?

This is really another version of the old question: Which came first, the hen or the egg? The answer is that the egg came first, and the answer to our present question is that the first oak tree grew from an acorn, but the first acorn was a new thing in the world, not produced by an oak, though doubtless by something very like an oak.

There are constantly coming into the world of life new seeds from which grow kinds of living things which are more or less new. They vary from those which went before them, and so they are known as variations. The first egg that produced the first hen was a variation, and so was the first seed that produced the first tree. Of course, we do not expect such changes to be violent. We should not expect a fern to produce an acorn one day, or anything but a bird rather like a fowl to produce the egg from which a fowl grew. Still, these new things do keep on coming into the world, and in many cases, the new kinds are superior to the old.

WHERE DOES ALL THE ENERGY GO AFTER A FOOTBALL MATCH?

This question has been wisely asked by someone who knows that all kinds of energy or power must always be accounted for, as they can never be lost. First, we must observe where the energy is after we have kicked the ball. It is in the motion of the ball, and, as it cannot be destroyed, we can readily understand the first law of motion, which says that the ball will go on moving in the same straight line for ever at the same speed.

Therefore, we must find what stops the ball, and then we shall be able to trace the energy which the kick first put into it. The ball is stopped by the resistance of the air and by the friction as it rolls along the ground. This means that its energy is now to be traced in the movement and heating of the little particles of air which it disturbs, and in the movement and heating of the ground. Of course, the ground must be heated a little, just as our hand is when we rub it on our clothes. In this way the ball gradually spends its energy, and ceases to move. If we trace the energy in the other direction, we soon find that we are led back to the sun — which really kicked the football.

CAN COAL-GAS ESCAPE FROM GRAVITY?

Nothing is more cetrain than that the law of gravity is always acting. It is never disobeyed or destroyed or suspended, because, though that may happen to the laws of men, it can not happen to the laws of Nature. Therefore, if anything appears to be defying the law of gravity, we must be sure that really it is under the influence of some other force or forces, and that what happens is the result of those forces and the law of gravity as well.

This is the case with a floating balloon or a floating cork, with an airship or a sea-ship, with a mountain and the clouds round its summit. It applies to coal-gas also, and if coal-gas or any other gas rises, we must understand that gravity is acting on it all the time, and that without gravity it would behave very differently.

A most remarkable discovery has lately been made, that it is possible for the atoms of any gas to jostle each other, and that in this jostling a certain number of them may move so fast that the gravity of the earth is not sufficient to hold them. When this happens these atoms fly away into space, though even as they do so, they are as much under the influence of gravity, and as much affected by it, as if they were falling back to earth. This especially applies to small globes, and explains why the moon has no atmosphere.

WHAT IS THE BLOOM ON A GRAPE?

The bloom on a grape is very beautiful and delicate, and we value it because it tells us that the grape has been cared for since it was plucked; or, if we see it on grapes that are growing, we value it there because we think of it as the right thing in the right place. Like the bloom on a cucumber, the bloom on the grape is really no part of the grape at all, nor can we even say that it is made by the grape. It is really a mass of microbes that have gathered upon the skin of the grape.

IS NIGHT AIR DANGEROUS?

Well, to begin with, all air at night is night air, so if it is dangerous we have to face it and breathe it through half our lives. But really this is a superstition, and quite untrue. The air at night is purer than by day, for it contains less dirt and dust and a smaller amount of the carbonic acid gas which fires and furnaces contribute to the air so largely by day.

The fact is that, in many parts of the world, including those from which we get our civilisation and many of our superstitions, it *is* very dangerous indeed to go out in the night air. People who thus expose themselves are apt to suffer from a very serious illness called malaria — a word which really means bad air. And, naturally enough, it was thought that the night and the darkness changed the air in some way so as to make it poisonous.

But now we know that malaria is due to a germ which is pushed into our bodies by a certain kind of mosquito when it bites us. If the mosquito with this germ does not bite us, we do not get malaria. Now, the mosquito's rule is to feed — which means to bite — at night only, and so it is the malarial mosquito that is the danger of night air.

WHAT IS THE MOST VALUABLE THING IN THE WORLD?

The value of anything is the power that it has for the service and making of life. Thus, a thing may be very cheap and very valuable, such as air or light. It is not a question of cost price or expense at all. So, if we use the word valuable in the proper sense, we must answer that by far the most valuable thing in the world is love. Of course, there could not be life at all without such things as water and air but, this being granted, the thing which makes for more life and higher life than anything else is love.

This is equally true whether we look at it from an outside point of view or from our point of view as human beings. Even from the outside point of view love is most valuable, because all the highest forms of life depend upon it, though lower forms of life, like vegetable life and that of the lowest animals, do not. But from our point of view as human beings there is nothing to approach love. Without the love of the mother for her child human beings could not exist at all, so that the highest kind of life that exists entirely depends upon love.

As for ourselves as individuals, we learn sooner or later that for each of us love is the most valuable thing in the world. It is the affection and friendship and companionship of those we love that give their value to life's other prizes, and that solace us in life's sorrows. And, unlike other things, the more we give the more we have, for the more we love the more we are able to love.

WHY DOES THE SAME FLOWER HAVE MANY DIFFERENT COLOURS?

All the colour materials of living things are definite chemical compounds, just like the colours in a box of paints. They are made where they are desired by the life of the corresponding cells of the plant or animal. Thus we must look upon the cells as tiny but wonderful chemists, able to make out of the plant-sap and the carbonic acid of the air the various chemical compounds which give the leaves or the flowers their colour.

That is all quite plain so far; but when we come to ask how it is that the cells in the petals make one kind of colour, and those in other parts of the flower entirely different colours, we can only say that these are the powers of life.

We are on the eve of getting a little farther towards some dim understanding of the reason, for we are beginning to learn the details of the chemical processes that make the colours. It is also becoming possible to show how the colours of plants vary between parents and offspring, and what are the causes in the seeds which decide what the colours of the plants that grow from them shall be. The foundations of our knowledge of this subject were laid nearly half a century ago by an Austrian monk named Mendel, who studied peas in his garden; but his work remained unknown until a few years ago.

WHY DOES NOT THE NELSON COLUMN FALL?

There is not a man of science in the world who can explain how it is that the towering column in Trafalgar Square does not fall. No man, indeed, can explain why you can lift the whole length of a poker by merely grasping and raising the handle of it.

You are reading this, no doubt in a room somewhere, and nobody can tell you why that room stands. Men can measure the depth of the sea and the distance of the sun; they can calculate the weight of the earth itself, and can tell what will happen in the sky in a hundred years; but no man can explain why the roof of your house does not fall upon your head. It is not enough to say that the wood and iron are fastened together, that the bricks are held fast by mortar, and that great beams hold up the roof, for every tiny atom of matter that makes up bricks and mortar and wood and iron is flying about like snowflakes on a windy day. Nothing is what we call "solid." Every bit of matter flies about at a rate that we can hardly think of — specks so small that each single speck has as much space to move in — in proportion to it size — as the earth itself; and they fly about, as we know, in a world that is itself for ever flying.

So that the very room we sit in is not still — every part of it is flying about; and yet it keeps together and holds up. There are buildings that have stood for twenty and thirty centuries or more. Men do not know why a building stands — they do not know, that is to say, the extraordinary power which keeps these little flying specks of matter in their place. There is a name that stands for this mystery, but that is all we know. It is what we call the miracle of *cohesion*. If you were to examine the Nelson Column with X-rays, you would find that this stone is composed of tiny atoms separated from each other by certain distances. The X-rays would pour right through the column, and illuminate objects on the other side.

How is it, then, that the column stands? Science can only answer that stone added to stone, and brick piled upon brick, will stand so long as the base is firmly founded in the ground, and so long as the weight at the top does not overbalance. All the vibration of traffic does not topple the Nelson Column over, and experience assures us that it will stand till the stone crumbles. But we cannot tell why.

Cohesion is one of Nature's secrets. How is it that the atoms which compose a walking-stick hold together? How is it that the atoms which compose a pin hold together? Much more may we ask: How is it that the atoms composing the Nelson Column hold together? They are little charges of electricity, tiny invisible atoms, and they stick together and build up by their millions what we call solids. Millions and millions of electrical charges form the fraction of a fragment of the Nelson Column. How do they hold together? When we have said Cohesion, do we understand the miracle any better?

ARE THE BEST SPEAKERS THE BEST THINKERS?

Certainly not, though we are too apt to suppose so. One man really thinks his best, whatever that is, when he is aroused by facing an audience; another can only think his best when he is absolutely alone with a pen in his hand. Good writers are often not good speakers. One of the greatest poets that England has produced since Wordsworth, was the dullest and most uninteresting talker that could be imagined, and his friends say that they cannot remember a single noteworthy thing that he ever said. Yet, when he had a pen in his hand, he wrote some things which will never be forgotten. Oliver Goldsmith was another such case, for it was said of him that "he wrote like an angel and talked like poor Poll." On the other hand, many wonderful and effective speakers have been poor writers, and when their speeches are taken down and printed, we find, on reading them in cold blood, that there is nothing in them. Indeed, the power to speak well really argues nothing for or against a man's thinking power; and it is a good thing, on the whole, that nowadays the written word is so much more important.

DO WE CHANGE OUR BODIES EVERY SEVEN YEARS?

There is no foundation at all for the notion that we change our bodies "every seven years." Almost every part of our bodies, except the outside of the teeth and part of the bones, is changing slowly all the time, for the material of it is being worn and burnt away and replaced by new material. That is one of the reasons why we have to eat. In a very true sense, we "die daily," and build ourselves up again from our food. If it were possible to mark all the atoms in our food and all the atoms that make our bodies, we should certainly find that nearly all the material of the body changed completely in far less than seven years. But seven was an old magic number, and in most superstitions where numbers are concerned, seven comes in.

It is often asked why, if we change our bodies so often, marks in the skin remain. The reason is that the form of the body remains, though the material of it comes and goes. The stuff that makes our brain-cells flows into them and out of them, but we remember things that happened long ago.

On the other hand, there are certain parts of the body which are simply made somewhere else, and pushed out or pushed up to serve for a little and then disappear. Hairs are like this; people who dye the hair soon find that they must renew the dye every now and then, for, as the hair grows, the real colour begins to show at the roots. The same is true of the outer skin, which is made and pushed up by the inner skin. Marks and stains on the outer skin do not stay, for the cells are soon washed away, and are replaced by new ones from beneath. But marks in the "true skin" remain, and never disappear.

WHY DOES A CANNON-BALL BOUNCE OUT OF THE SEA BEFORE IT SINKS?

What happens to the cannon-ball when it bounces is what happens when we make "ducks and drakes" with flat stones as we walk along the seashore. The key to it is the key to all cases where anything bounces. The moving object has force in it, for motion is a kind of force. When it strikes against anything, like a ball thrown against a wall, part or all of its force is changed into something else.

What will now happen depends entirely on the nature of the moving object. If it is made of sand or snow, gathered into a loose ball by our hands, the force of its motion is changed into a force that scatters the parts of the ball asunder, as we notice when we throw a snowball at anything.

The reason is that a ball of snow or sand has no elasticity. But an india-rubber ball or a cannon-ball has elasticity, which means that when it is knocked out of shape it tends to return to that shape, unlike the snowball, and this return makes it rebound from the surface it has struck. The cannon-ball cannot rebound for ever from the water, although it remains elastic, for neither the water nor the ball is perfectly elastic, and soon gravitation has its way.

THE NEXT PART IS ON PAGE 5953.

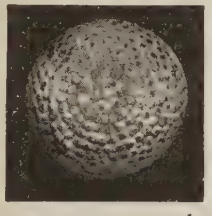
WHY THINGS ARE DONE

WHY A HOUSE HAS CHIMNEY-POTS

OXYGEN, which is one of the gases that make up the atmosphere, is necessary for the burning of a fire, and if a fire is to burn well there must be a draught of air through it so that there may be a constant supply of fresh oxygen. The rate at which this draught of fresh air travels through the burning embers depends largely upon the height of the flue above the fire, and by adding a chimney-pot to the opening on the roof, the flue is extended and the bright burning of the fire assisted. This explains why, when the fire of a certain grate will not burn well, the builder overcomes the difficulty by taking away the old chimney-pot and putting a longer one in its place, or by adding a galvanised iron extension to the old one. He thereby makes the chimney-flue higher, so that it will draw very much better.

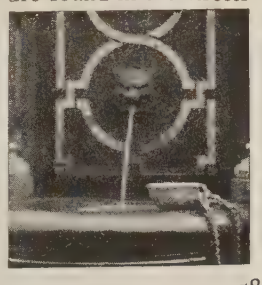
WHY GOLF BALLS ARE CRINKLED

GOLF balls are always uneven on the surface, but they have not always been made like this. At one time they were made quite smooth. When, however, the smooth ball was used for play, the blows of the club soon dented the surface, and it was noticed by observant players that the ball always went farther and straighter after it had been dented in this way than when it was smooth. Experiments were made by manufacturers, and gradually the present type of ball was evolved. The explanation of the crinkled ball going farther and more accurately to its mark than a smooth ball is probably that the air, playing upon the unevenness of the surface, gives the ball a twist as it passes along, just as a bullet is given a twist by the screw thread cut inside the rifle-barrel.



WHY A FOUNTAIN HAS A LION'S HEAD

IF we look at the public drinking fountains, so many of which are found in the streets of our cities and towns, we shall notice that many of them are carved into the shape of a lion's head. The practice comes to us, through the Greeks and Romans, from the ancient Egyptians, who adopted the lion's head as the symbol of the annual rising of the river Nile. This rise takes place when the sun is in the constellation Leo, or The Lion, and so the lion was used as the symbol for the life-giving waters of the Nile, and fountains were carved with the shape of a lion's head as they are to-day.

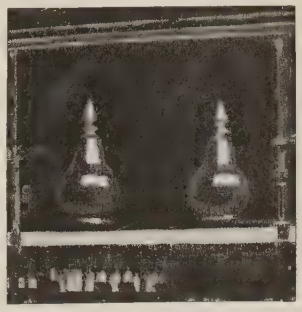


WHY A LAWYER IN ENGLAND WEARS A WIG AND GOWN

THE practice of the law was, in the Middle Ages, confined to the clergy, who, of course, wore their characteristic dress. When laymen began to act as lawyers they wore a gown very similar to that of the clergy, and as a compromise between the monastic hood and the tonsure, or clean-shaven heads, of the clergy, they wore what was called a coif, a kind of nightcap. This cap was originally of linen, but later was made of silk; and when the general custom of wearing wigs came in, during the seventeenth century, the coif gave place to the wig in the dress of lawyers. Of course, the gown and wig have both changed in shape from time to time, until they developed into their present form.

WHY A DRUG STORE HAS COLOURED GLOBES

A DRUG store usually has several very large globes or bottles of coloured liquid in the window. When the gas or electric light is on at night the light shines through these, and the drug store is recognised at a considerable distance by its bright colours. These globe-like bottles with their coloured liquids are a relic of the old days when the apothecaries and alchemists used to have a number of retorts and jars, in which they kept or prepared their mixtures, and which were, no doubt, as much to impress their clients as for actual usefulness. The chemist has dismissed the retorts from his shop, but he retains the big jars in the shape of these great glass bottles full of coloured liquids, so attractive to our fancy.



CONTINUED ON PAGE 5953

HALF A TON OF FIRE AND STEEL FLYING FROM ENGLAND TO FRANCE

A GUN FIRED AT DOVER WOULD HURL A HALF-TON SHELL TWENTY MILES ACROSS THE CHANNEL AND DESTROY A TOWER IN CALAIS

The mighty power of the modern gun seems like some wild nightmare. The weapons with which our latest warships are armed will hurl a mass of steel and explosives weighing half a ton from Dover to Calais in a few minutes, and at the end of its journey the shell will strike with great force and explode, doing immense damage.

CONTINUED FROM PAGE 5800.

WHAT A BIG GUN CAN DO

THE MOST POWERFUL THING ON EARTH

THE most powerful thing on the earth made by the hands of man is a big gun. With this mighty weapon he can send half-a-ton weight flying through space at twenty miles a minute, hitting a ship with force enough to shatter it to pieces. No other thing that men can make has such power concentrated within it as the big gun.

It is terrible to think that this great power is meant for the destruction of life, that the utmost strength that men can put into a thing is put into it to wreck ships or to blow up cities. But the guns are made for use in war, and, while war remains possible on the earth, nations must be prepared for what may happen. The United States or Great Britain, with vast territories and wide seas to guard, must put themselves in such positions that other powers will not dare to attack. They must keep off such attacks by their preparedness to deal with them, and must be in such a state of readiness that, should the worst happen, and some unexpected assault come, they will be able to defeat the enemy. That is the meaning of all our mighty Dreadnoughts, and of the new 13.5 and the 14 inch guns, which have just been made for the first time, with which the new vessels are being armed. The British Navy is the most powerful fighting machine ever set up on the face of the earth, and it is powerful because of its mighty guns. A new gun, bigger than any gun ever made in Europe—though not so big as the 14-inch now being introduced in the United States — has just been introduced into the British Navy; it is known as the 13.5. That is how we speak of the power of a gun; 13.5 inches is the width across the mouth of a gun, or, as we say, the diameter of the muzzle, the point at which the shell leaves the gun.

What does a 13.5 gun mean? It represents the power to send a shell right through 12 inches of the finest steel at a distance of seven miles. It can do very much more than that. It might send a shell from the top of Dover cliffs right on to the coast of France. But we are dealing now with the definite purpose of the gun. It is of no use firing great shells at random; each one costs hundreds of dollars to fire. To be sure of hitting the gunners must have sight of the vessel at which they aim. From seven to eight miles is the greatest distance at which a gunner at sea can be expected to work. Let us suppose, then, that the unfortunate day has

come when one of these great guns has to be fired.

The ship lies seven or eight miles from the British ship, and the word to fire is given. The gunner, having aimed his gun, presses a button, a current of electricity is set up, a charge of powder is exploded, and with a roar enough to deafen, the cannon throws out a vast shell weighing 1,400 pounds, which speeds through the air.

THE END OF AN AMAZING JOURNEY

This half-ton shell, shaped like an immense cigar, whirls through the air, and, in the time that it takes the fastest runner to run a hundred yards, covers the seven miles separating it from the foreign ship. Its journey is ended, but its work is only now begun. The shell, though it has been flung seven miles, has still enormous power behind it. It may go through the steel armour of the ship, and burst into fragments, making an enormous hole in the side of the ship, perhaps entirely ruining it, rendering it a helpless wreck. If that one shell should not do the deadly work, others will follow. This new gun could send its messenger much farther than seven miles, but seven miles is the distance at which the gun can be fired with a good chance of hitting.

There are other guns which can fire several miles. The 12-inch guns can send a shell about seven or eight miles or even more, but then their shell weighs only 850 pounds, little more than half the weight of the new shell. Therefore this new weapon, flinging this huge shell, is practically twice as effective as the other, though only just more than an inch larger in diameter.

THE "TINY" MAKERS OF VAST GUNS

The heavier the shell, the more terrible are its effects. Every child who knows anything about the effect of momentum understands this. A great vessel which is barely moving at sea, does frightful damage if it collides with anything, because the momentum of the heavy ship is so enormous. We can all see that the momentum of a shell weighing more than half a ton is vastly greater than that of a shell weighing only 850 pounds.

The effect of the new gun is extraordinary. Great war vessels had been built with armour calculated to withstand the effects of shells fired from a 12-inch gun. But the new shell renders that armour useless.

Man is a tiny creature compared with these vast guns that he builds. The 13.5 gun weighs about 80 tons — as much as 1,200 of the men who build it. A gun still bigger is being planned, a 16.25 gun, placed in a ship very much larger than the biggest Dreadnought now existing, but at present the 13.5 is the largest in the British Navy. How do we get guns capable of throwing these masses of metal so far, huge shells which shatter ships, yet do not destroy the guns which fire them? The secret has been worked out during long years of costly and patient experiment with metals.

MAKING A GUN MIGHTIER THAN A THOUSAND MEN

The making of one of these guns is one of the greatest triumphs of engineering skill. Though a cannon looks solid, it is not made in one piece. The barrel is bored out from solid steel of special purity, and its interior is scored, or "rifled," to make the shell twist as it flies through the air. Then outer tubes, or coats, of metal are "sweated on." That is to say, they are heated, which causes them to expand, and then are fitted over the inner part, and allowed to cool and shrink. Great care is taken with the cooling, to see that the shrinking of the metal shall be uniform. The makers may go on building up outer coats of metal in the form of joined steel hoops, but generally they wind wire on the gun.

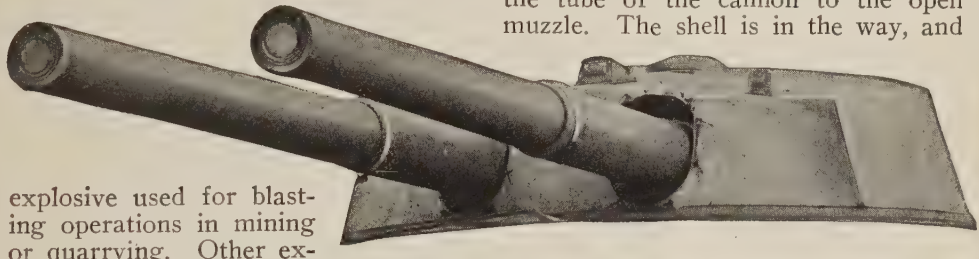
The wire, wound on machinery, is coiled round and round, till more than a hundred miles of it has been wrapped about the great cannon. Great as is the strength of the wire in resisting pressure which pushes out at the sides, it does not give strength lengthways. Great strengthening has, therefore, to be given in the form of extra thickness of metal to the muzzle of the gun,

where the vibration caused by the shell leaving the weapon is heaviest. Little by little, with infinite care and skill, the gun is built up part by part.

What makes the shell fly?

At the back of the gun is the breech. It is here that the shell is placed, in a specially constructed chamber. When the shell has been fixed in position for firing, the breech is closed and fastened by enormously strong screws, so that the charge shall not burst the gun open at the back. When all is ready, and the word to fire is given, an electric spark is kindled, and this fires the charge which sends the shell forth on its terrible work of destruction.

It takes about 200 pounds of cordite to discharge one of the new shells, and the shell itself contains perhaps 100 pounds of bursting material which will rend it apart when it strikes the ship. There are many different explosives. Some are intended simply to rip and tear and break. That is the sort of explosive used for blasting operations in mining or quarrying. Other explosives are intended to drive things forward.



And this brings us to the whole mystery of the flight of a shell. When the charge is exploded, either by heat or by shock, the effect is the same. Gunpowder, of course, is in the form of powder, but cordite is not a powder; it looks more like a form of cord, and it is that fact which gives it its name. But the effect is the same in both cases. The electric spark, or other form of heat and shock, explodes the cordite. In an instant the mass of cordite which discharges the shell is converted into boundlessly expanding gas. We can get an enormous quantity of cordite into comparatively small space, but the instant it is changed into gas there is a terrible commotion. Gas takes up a great deal of room. The cordite gas cannot get space in the cannon, because there is a half-ton shell in the way, so that, as nothing can stop the gas from expanding, the cordite gas, in its gigantic effort to free itself, makes a mighty effort and sends the great shell spinning down the muzzle of the cannon, out for 20 miles in space. It will drive a shell weighing half a ton from England to France in a minute or two with such force that when it hits it hits with a pressure of many tons.

An explosion of gas in a house will blow all the windows out, and perhaps shatter a door or two and bring down a wall. But imagine that explosion enormously multiplied, *occurring within a tiny steel chamber!* We can fancy how things would fly then. That is what happens in the terrible recesses of the mighty gun. The cordite, changed into enormously powerful gas, must instantly find its way out. There is only one way out, and that is down the tube of the cannon to the open muzzle. The shell is in the way, and the shell must go. If the gun were full of shells they would all have to go. But, there being only one shell there, that shell receives the full force of the explosion, which may send it through a battleship miles away.

Power from nature's treasury

Cordite is used in preference to gunpowder for various reasons. It is smokeless, and so does not betray the spot from which it has come. It does not wear out the cannon so soon as gunpowder. But a still more important reason is that it does not exhaust itself in explosion so quickly as gunpowder does, and it is this which enables it to send forth the shell with such enormous velocity.

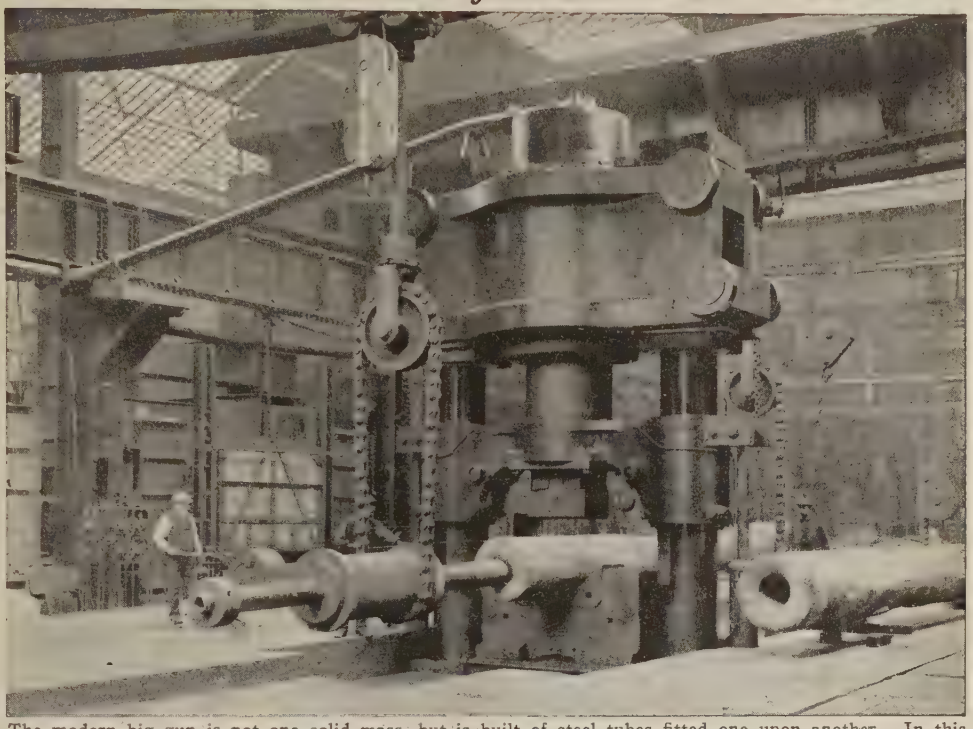
THE NEXT PART IS ON PAGE 5973.

THE BIRTHPLACE OF A MIGHTY GUN

Of all the wonderful inventions conceived by man, perhaps none can so truly be regarded as a symbol of might and energy as the big gun, of which these powerful steel furnaces are the actual birthplace.

The steel is drawn from the furnace in a fiery stream, and carried in a great ladle to the casting-pits, as shown here. When it cools it becomes a solid ingot of fifty tons, like that seen on the left.

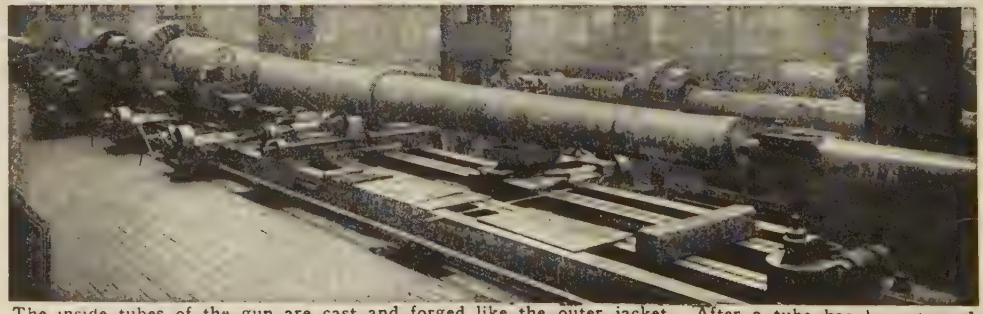
HAMMERING THE JACKET INTO SHAPE



The modern big gun is not one solid mass, but is built of steel tubes fitted one upon another. In this picture we see one of the great barrels of our largest type of gun being forced, or pressed, into shape.

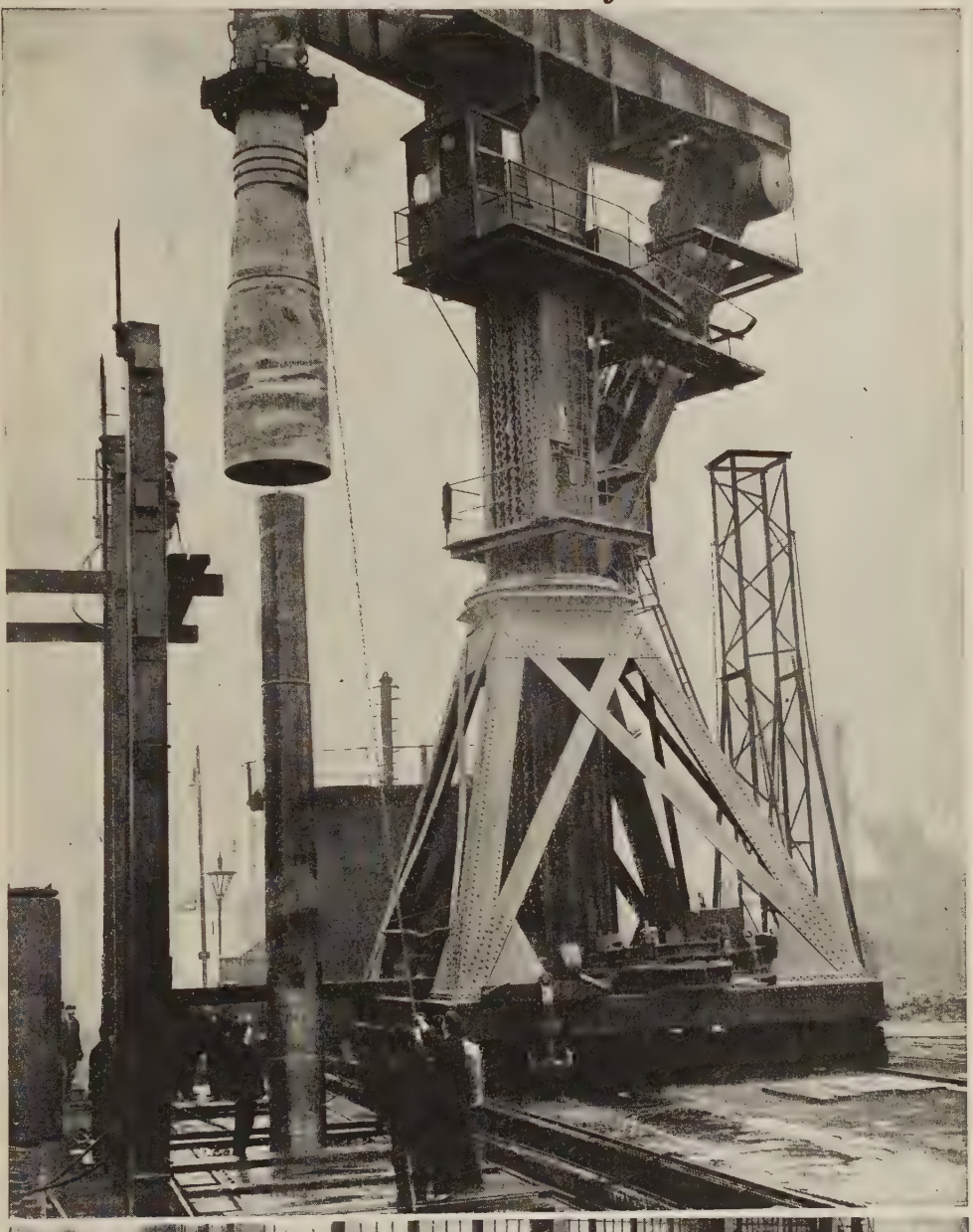
This is the jacket of a big gun, the shaping of which by a hydraulic press is nearly finished. When completed this weapon will hurl a shell weighing half a ton a distance of thirty miles in a minute or two.

DIPPING A 50-FOOT GUN INTO A PIT OF OIL



The inside tubes of the gun are cast and forged like the outer jacket. After a tube has been turned, cut into shape outside and bored through the middle, it is heated and let down by a crane, as shown in top picture, into a pit of oil to harden it. It is then taken out, straightened if it has become bent, and turned, or cut, into shape outside. The lower picture shows the outside jacket of a gun being turned.

PUTTING A BIG GUN'S JACKET ON



The main tubes of the gun are fitted one upon another and fourteen tons of steel wire are wound round them. The wire for one gun is 117 miles long, and would stretch from New York to Hartford. The outer jacket is slipped on as shown in the top picture. The outside of the gun is turned on a lathe; the inside is again bored so that it may be perfectly smooth. The bottom picture shows the boring operation.

THE INSIDE OF A BIG GUN WORKSHOP

This is the kind of workshop in which a big gun is made. It is of enormous size, and the machinery is the most powerful in the world. Gigantic cranes lift and carry big guns as though they were toys.

This is the mounting department. When the gun is finished, and has been tested by firing as shown on page 5855, it is brought here and mounted upon a carriage with very clever and elaborate machinery for turning and tilting it. It is then ready for fort or battleship. However good the gun might be, if it were not properly mounted so as to turn about in all directions it would be almost useless in war.

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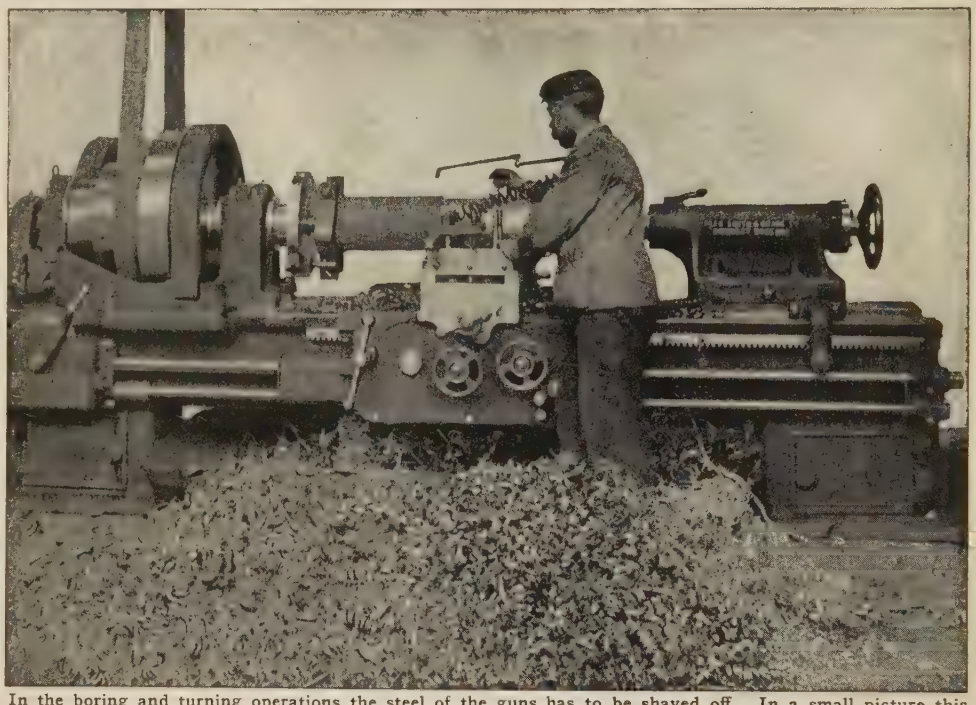
THE WHITE-HOT METAL FOR MAKING A GUN

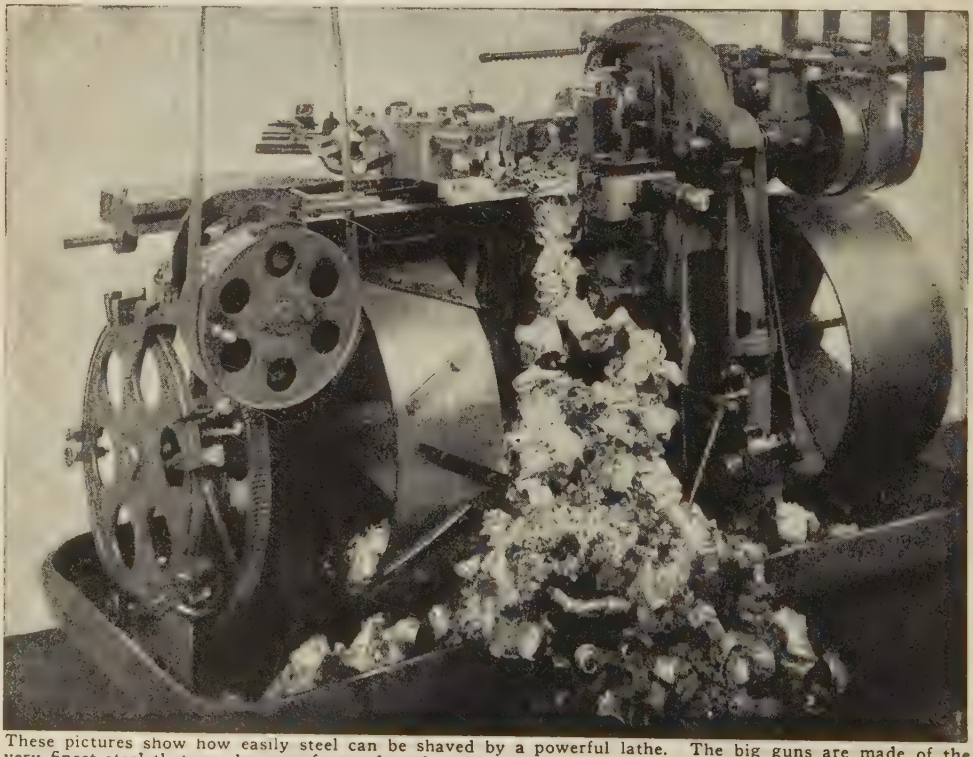
In this picture the men are pouring out a great mass of molten brass, to be used in making the fittings for a big gun. The heat is intense; if the metal were to be upset the men would be destroyed instantly.

The artist gives us a vivid impression of the scene in a big-gun factory when the machinery is at work shaping the mighty ingot of white-hot metal into a gun. Material and labour represent about $50,000.

THE KNIFE THAT SHAVES STEEL LIKE PAPER



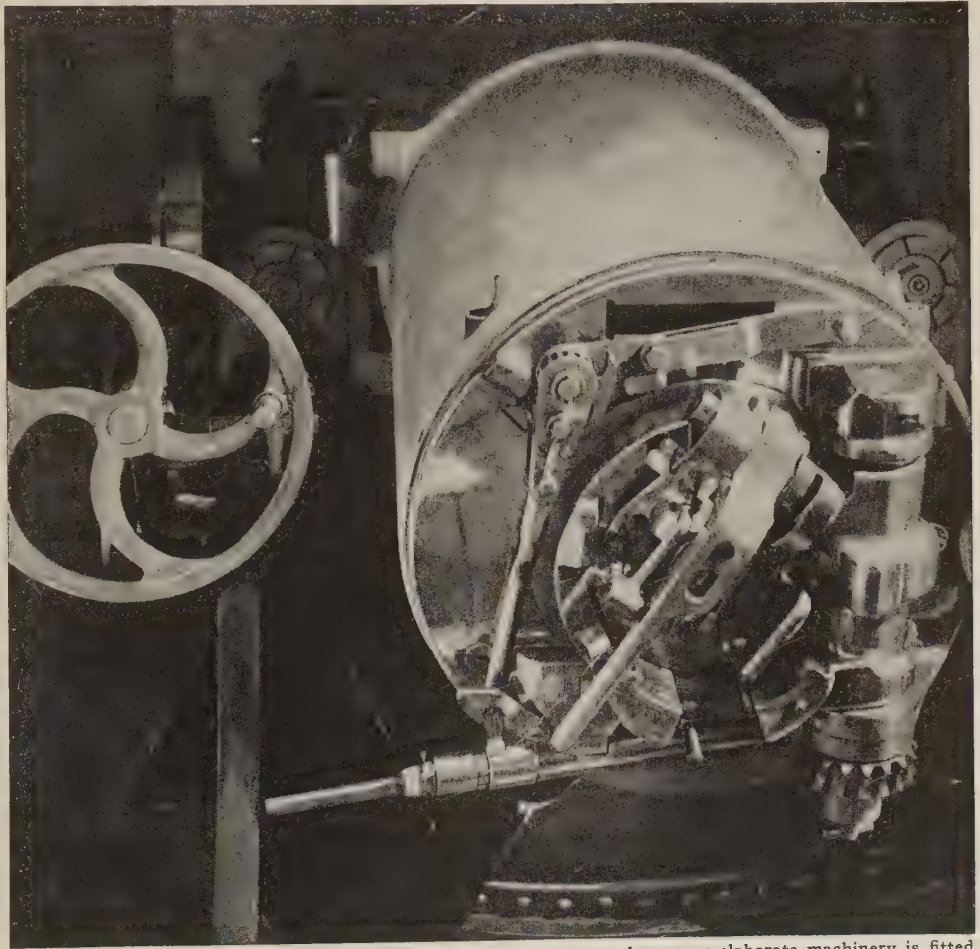
In the boring and turning operations the steel of the guns has to be shaved off. In a small picture this marvellous operation on a gun cannot be well shown, but here we see a small lathe doing the same work.



These pictures show how easily steel can be shaved by a powerful lathe. The big guns are made of the very finest steel that can be manufactured, and to be able to cut such a metal is an engineering triumph.

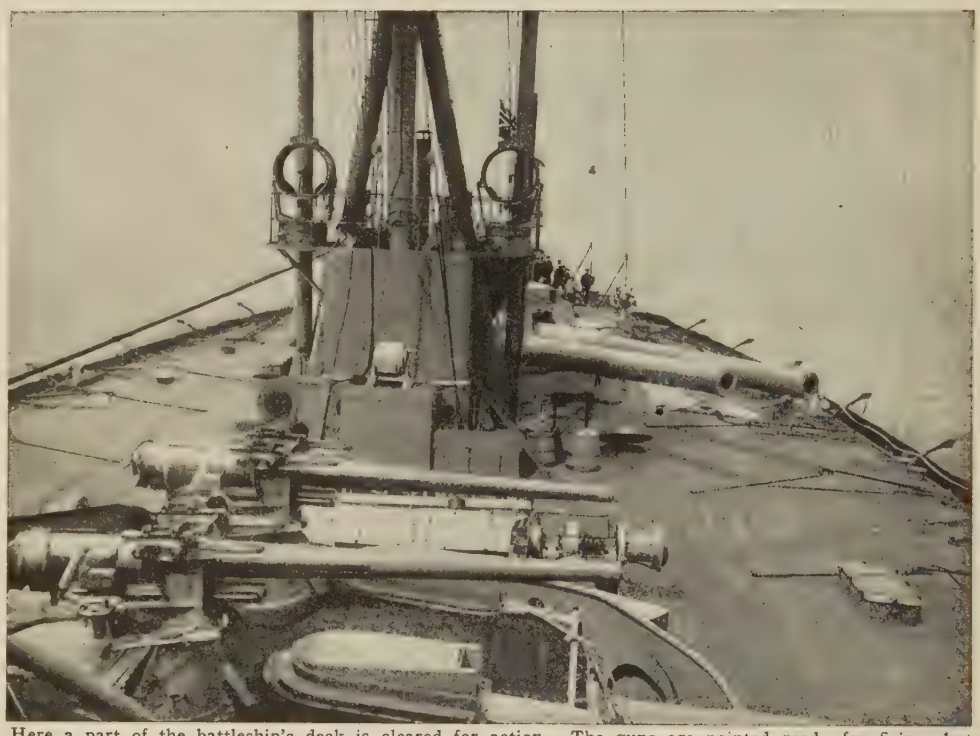
WHAT A BIG GUN IS LIKE INSIDE

These pictures show the muzzle of a big gun. On the left the boy on the shoulder of the sailor is looking at the grooves, which cause the shell to twist as it is fired, thus adding tremendously to its speed.



In the old days a gun was fired by applying a light to the gunpowder; now elaborate machinery is fitted to the back of the gun to send the shell on its terrible journey. Experience is needed to handle a gun.

THE BIG GUN ASLEEP AND AWAKE



Here a part of the battleship's deck is cleared for action. The guns are pointed ready for firing, but at present are asleep. In the picture below they are awake and speaking with terrible voice and effect.

When a broadside is fired, many tons of steel and explosives, in the form of shells, are hurled from the guns at the rate of two thousand miles an hour. These messengers could destroy a town or sink a fleet.

BOMBARDING A CITY OUT OF SIGHT

The big gun of a battleship is the most terrible thing that man can make. It speaks from a point far beyond the sight, carrying death and destruction wherever it falls. From a single spot in London one gun could destroy in turn Chelmsford, Rochester, Chatham, Tonbridge, Guildford and Maidenhead. It could speak from the mouth of the Thames at Southend, and in a minute St. Paul's would cease to exist.

THE NEXT PART IS ON PAGE 5973.

THE CRASH, CRASH OF AN AVALANCHE

This picture gives some idea of the scene of terror and dismay when an avalanche crashes down the mountainside, smashing trees and lifting houses through the air like feathers, as described in Sir Martin Conway's vivid narrative of how a mountain fell. The whole catastrophe is but the work of a moment.

WHAT THIS STORY TELLS US

THE great Canadian nation we know contains in its population two great elements, French and English. Though the country has been under English control for about a hundred and fifty years, we learn that the French language, manners and customs are still common in many parts of the Dominion, and that in some parts English is still a foreign language. This does not mean that the people are hoping to come again under French control, for these people of French descent are loyal Canadians, who have great pride in their country.

THE FRENCH IN CANADA

A TRAVELLER through the province of Quebec cannot fail to notice that he is passing through a country of French origin. Though the French flag is seldom seen except on some holiday in company with others, nevertheless on this part of the continent where France once ruled supreme she has been able to leave a permanent impress. This impress is not in the valley of the Mississippi, where a number of French still live, nor in the south, where the time is not far distant when the French language will disappear from Louisiana, but further to the north. The picturesque banks of the St. Lawrence from the Atlantic to the great lakes of the West are the home of a large and rapidly increasing population whose language and customs are so many memorials of the old régime.

THE ORIGINAL IMMIGRANTS FEW IN NUMBER

It is estimated that not more than eight thousand immigrants came from France during the French régime. Many of these were ruined gentlemen and half-pay officers. Louis XIV boasted that Canada contained more of his old nobility than all the rest of the French colonies put together. At the time of the English conquest this little band had increased to 65,000. From 1763, the natural increase of French Canadians has been little less than miraculous. This group has increased until to-day Canada has upwards of two million Canadians of French descent, and nearly another million have come to the United States.

In different parts of Quebec the French Canadians are gradually replacing the English-speaking people. Twenty years ago eleven counties in the southeastern part of the province had a majority of English inhabitants; to-day the majority in each case is French. The movement is so considerable that in numerous townships where ten years ago not a word of French was spoken, you would hardly be understood to-day if you spoke in English. The city of Sherbrooke, with a population of 9,000 twelve years ago, had a slight English majority; now out of a population of 17,000 there are 11,000 of French origin. The English farmers have gone in great numbers to the West and their farms have been bought by the French Canadians.

The French Canadians have, during the past few years, made many settlements in Ontario. They have invaded the province from three points, the east, the southwest and the north. At present, there are nearly 250,000 in the province and they are increasing so rapidly that a Toronto newspaper recently said that in twenty-five years French Canadians would form at least a fifth if not a quarter of the population. They have representatives in the Ontario Assembly and in the Dominion

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Parliament. The Ontario farmer of English descent is moving westward, and his place is being taken by the French Canadian. An increasing number is employed in factories and in mills. In the Maritime Provinces over 150,000 more are found. This increase is small compared with that of Quebec and Ontario. The Canadian West does not show large French gains. There are a few centres but the increase in numbers has not been great. The French Canadians are contented to confine themselves to the older provinces.

The French Language Persists

Outside of the large cities the French language is the only one spoken in Quebec. The language is not so impure as many people suppose. On the contrary, it is spoken by the educated classes with a purity not excelled in France itself. The better classes of French Canadians take pride in studying the language of the country of their ancestors. The records and the statutes of the Dominion Parliament are always given in the two languages and the same is true of all the motions put by the Speaker. Though the reports of the debates appear daily in French, English prevails in the House of Commons and in the Senate. The French Canadians are forced to speak the language of the majority and it is some evidence of the culture of their leading public men that many among them are able to express themselves in English with a freedom and elegance which no English speaking member can pretend to equal in French. In the legislature of the province of Quebec French has almost excluded English, though the records are given in the two languages. In the supreme court of the Dominion, the arguments may be in French and the two Quebec judges give their decisions in their own tongue.

The Love of Poetry and Music

The French Canadians have a natural love for poetry and music. Madame Albani, a French Canadian by birth and education, won great distinction as a singer. No writer of this nationality has as yet produced an opera or a drama which has won distinction for its author. The Church has opposed the theatre, which has never attained a successful foothold in Quebec. Sacred music, so essential a feature of a Roman Catholic service, has always been cultivated with success.

During the past half century, the French Canadians have created for themselves a literature, which shows that they have inherited much of the brilliancy of their race. Their histories and poems have attracted much attention in literary circles in France, and one poet, Louis Frechette, won the highest prize of the French Institute for the best poem of the year. In art progress has been made and men go to the Paris art schools from time to time. One of the Canadian sculptors is Hébert, a French Canadian, whose monuments of eminent Canadians stand in several public places. In romance little has been done. Generally the French Canadians have not distinguished themselves as scientists, though Laval University, the principal educational institution of the higher classes, has among its professors men who have done good work in various branches.

The people are devout Roman Catholics. The numerous churches, colleges, and convents of the country, show the power and wealth of the Church and the desire of the people to glorify and perpetuate it by every means in their power. Jesuits, Sulpicians and Recollets have done much to mould the thought and control the destiny of the people under their care.

Education among the French

The education of the French Canadians in the province of Quebec is entirely in the hands of the Roman Catholic clergy and that of the Protestant minority in the hands of a Board of Protestant Commissioners. The taxpayer has the option of saying whether his taxes shall be spent for Catholic or Protestant educational purposes. The priests exert a powerful influence and guard very carefully what shall be taught in the schools, and what books

TWO FAMOUS CHURCHES OF CANADA

About twenty miles down the St. Lawrence from Quebec is the little village of Ste. Anne de Beaupré, noted for its famous church, visited every year, particularly on St. Anne's day, July 26th, by thousands of pilgrims who hope to be cured of their ailments. Here is the outside of the church and the altar known over the world.

Notre Dame in Montreal is one of the largest churches in America, and will hold 12,000 worshippers. One of the towers contains a fine chime of bells. The view from this tower is magnificent. The picture on the right is a view of Quebec made from the Parliament buildings.

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shall be read by the people. The educated classes are more independent. The people in the rural districts obey every order from the Church and among them the clergy exert their greatest influence. Only the French language is taught in the schools and in the large majority of the country parishes one would not be understood if the English language were used.

Good qualities of these people

No class of the population of Canada is more orderly or less disposed to crime than the French Canadian. The standard of morality is high. During the rule of France, the king made a gift of twenty livres to each young man who married before the age of twenty and to each young girl married before sixteen. The custom of early marriage is still very common and large families are the rule in all parts of Quebec. Intermarriages between English Protestants and French Catholics are very rare. As a result there is little prospect of an Anglo-French race.

England has shown a broad-minded policy in dealing with the French Canadians, a race different from her own and different also in language, in religion and in traditions. It is wonderful how this hardy people, cut off from the motherland to which they were ardently attached, have preserved their traditions, their language and their nationality. By wise methods England has transformed this people into the most loyal of her supporters. She has allowed them to dwell under the folds of her flag as a nation within a nation and has permitted them to preserve the things which were dear to them. The French cherish a deep love, and naturally so, for France, while to England they accord respect, admiration and gratitude for the privileges that they have received.

The French Canadians are proud of their religion, their laws and their language. They know England has been their best friend and that in fighting for her they would be fighting for their own independence, their faith, and their dearly-beloved Canada. To them Canada is all in all and their Canada is French Canada. Modern France is to them a distant relation. England is a venerable stepmother. They have been so impressed with the sincere effort of England to extend equal rights and justice to the two great races in Canada that they to-day accord to Great Britain a deep loyalty. Sir Wilfrid Laurier, the grand old man of Canada, and generally considered the leading statesman in the British Colonial Empire, in a speech delivered a few years ago at Paris, said that they were loyal to France, the great nation which gave them life, and that they were faithful to England, the great nation which had given them liberty.

The feelings towards France are purely sentimental, a link with the past, and nothing more. They cherish their French blood, they prize their beautiful French language and literature, but they are intensely loyal to England. The Union Jack and the French Tricolour, each has to them its peculiar significance. Each evokes distinctive feelings. The one, under which they obtained the fullest liberty, has their respect and good will; the other arouses the national feeling of race pride.

The French Canadians have been much wrapped up with the traditions of the past. A new movement, however, is beginning to show itself. They are commencing to pay less regard for the past and to live for the future. The people are becoming broader in their views and are learning that their Canada is beyond Quebec. An intense interest is being taken in the development of anything Canadian. The French Canadians are entering the industrial, the commercial, and the financial fields, and with great success. In future they will be found in every sphere of business, and working shoulder to shoulder with the English-speaking brethren to develop the great resources of their native land.

Proud as the people are of their French origin, they object to being referred to as French. They feel that they are not French, but Canadians, and resent criticism which sets them apart from the rest of the people. A new Canadian nation has been born.

CANADA IS SOMETIMES QUAINT, OFTEN BEAUTIFUL

This house, situated on the Saguenay Bay, is inhabited by Canadians of French descent, called habitants. The walls are old, but some features show modern improvements.

Laval University in Quebec is the chief educational institution of the Roman Catholic Church, and is one of the leading universities of Canada. Law, medicine and theology are taught as well as general subjects. The university was founded in 1852 and has a branch in Montreal The theological seminary is much older.

Photographs from Brown Bros.

In the country districts of Quebec many of the habitants live much as their ancestors lived while the country was still a possession of France. This oven is built, as you see, out-of-doors. Naturally fresh bread is not baked every day, but enough is baked at one time to last several days, as it is a considerable task to heat the oven.

A hundred years ago such a sight as this was common in the United States, but has now become rare as factories have increased in numbers, and now produce goods so cheaply. Many of the habitant women, however, still weave most of the cloth with which their families are clothed.

THE CANADIAN HABITANT

THE old French system of government divided the country into large estates or seigneuries. The owner of an estate was called a seigneur and on accession to his lands was required to pay homage to his feudal superior. The seigneur divided his estate among his vassals on condition of their making small annual payments in money or in produce. The vassals were also obliged to grind their corn at the seigneur's mill, to bake their bread in the seigneur's oven, to give their lord a tithe of the fish caught in their waters, and comply with a few other conditions at no time heavy or strictly enforced.

HOW THE NAME AROSE

These original tillers of the soil would not accept the French name "censitaire," which carried with it some sense of the feudal servitude of the vassal in France. They preferred to be called "habitants," the French name for inhabitants, or free men, and not vassals. The name obtained official recognition in New France and has become the characteristic name of the French Canadian farmer among English speaking people. So the very name which strangers to the Province of Quebec sometimes regard as a term of reproach is really one of dignity. The habitant may be regarded as the original type of Quebec in very much the same manner as the people of Ontario may claim the United Empire Loyalists as their original type. For the first hundred and fifty years of the history of Quebec, the only white inhabitants were of French birth or extraction. The term habitant has therefore meant the descendants of the early settlers. The attachment of the habitant to the land is very striking. In many instances, farm lands are still held by the direct descendants of those to whom they were granted in the earliest days of the colony.

WHAT THE HABITANT IS LIKE

The transfer of Canada to England by France left the habitant in possession of his land and his property. He remained as French as ever in character, in faith and in speech, as much habitant as ever in his love for the land discovered and colonised by his ancestors.

The tourist who travels through the Province of Quebec sees on all sides the evidence that he is passing through a country of French origin. Here and there he sees houses and churches which remind him of many a hamlet or town that he has visited in Brittany or Normandy. Many of the barns and out-houses have thatched roofs, which are not seen in any other part of Canada. The houses are for the most part built of wood and frequently consist of a single large whitewashed room, spotlessly clean, the walls and ceiling hung thick with all manner of household goods and utensils. The high iron stove is the most important feature of every dwelling in a country where the cold of winter is so extreme. A highly coloured print of the Virgin and pictures of one or more of the favoured saints occupy prominent places on the walls. The chairs and table are as a rule home-made. Two very high beds and bunks furnish sleeping accommodations for the family. Under the beds are tiers of long drawers arranged one above the other. Here is the sleeping place for the children, where you will often find from fifteen to twenty sleeping in their cosy and quaint beds.

The language is French from the Saguenay to the Ottawa, and in many communities English is never spoken, and is understood only by the parish priest or curé. The language is far better than the language spoken by the peasant class in France. In many rural districts the people retain the language as it was spoken two centuries ago, though without the accent of the older provinces of their origin.

The habitant is quite as strong in body as the man of English blood in Ontario and is stronger than the peasant of France. He is a frugal, hard-working man, and nowhere will you find a race more industrious and law-abiding. His temperate habits make him a valuable employee in mills and factories of all kinds. Many prefer this

life to that of the farm and until recently there was a steady movement to the manufacturing towns of New England.

THE FAMILY OF THE HABITANT

The thrifty habitant rears a large family and is taught that herein he is doing his chief duty to the French Canadian people. He is prouder of his large family than of any other of his worldly possessions. The poorer he is the more delighted he appears to be with his children. Families of from twenty to thirty children are not uncommon. All do not remain upon the land; some are sent to college, while others enter business and the professions.

The people are very devout Roman Catholics. In the present, as in the past, the Church makes every effort to supervise with a zealous care the teaching and the reading of the people in the rural districts, where it exercises the greatest influence. The parish priest or the curé is the most powerful and dominating person in the every-day life of the habitant. He takes a leading part in all the affairs of the parish and in many instances he determines how his parishioners shall vote at elections. To-day, more independence of thought and action is showing itself in the country districts. The whole land is practically parcelled out among the saints as far as the names of the settlements and villages are concerned. The foremost saint appears to be Saint Anne, whose name appears very frequently in all parts of the country. The schools are under the direction of the priests and religious orders.

SUNDAY AMONG THE HABITANTS

Sunday is a great day, full of religious practices in the morning and of amusements in the afternoon and evening. The feasts of the Church are kept with great zeal and consequently the French Canadian has holidays without number. The habitant lives contentedly on very little and is happy as long as he is within sound of the church bells, goes regularly to confession and observes all the Church holidays.

Happy in his home and contented with his lot, the habitant's light-heartedness and freedom from worry shows itself in a variety of innocent amusements. He is a born story-teller and nobody is fonder than he of music, song and story. Both young and old are very sociable in their habits and love music and dancing. The violin is the favourite musical instrument and all delight in the old-fashioned dances. The priests do not encourage reckless gaieties or extravagance in dress. Now and then the bishop issues an order forbidding the waltz and other fast dances and certain fashionable modes of dress. His orders are soon forgotten in the villages and the towns but they are religiously observed in the country communities. The songs are the same in spirit and very frequently in words as those which their ancestors brought from Brittany and Normandy.

WINTER IN QUEBEC

When the days shorten and snow begins to fall, the habitant quits his farm and journeys to the nearest lumber camp. Not a man who can swing an axe or drive a team would miss his winter season in the forests. His social instinct is ministered to by the life in the crowded camp. The hard work in the bitter cold is made merry by shout and song. The long evenings are passed in the telling of stories and the singing of old French songs as the men lounge in their bunks or gather in groups about the roaring box-stove. The family at home also has its diversions. Some of the old men and women are accomplished story-tellers, and the children gather around the fire there to listen breathlessly to the accounts of the *loup-garou,* as well as pleasanter tales.

The habitant makes no effort to conceal his affection for France. His love for that country is for the land of his origin and his early ancestors. Proud as he is of his French origin, he objects to be referred to as "French." He feels that he is not French but Canadian. No element of the Canadian population is more intensely loyal. His only country is Canada and his loyalty is that of the most fervent patriot.

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OLAF OF ORCHARD FARM

OLAF was a little boy who lived in a farm in the North Country, where the grey rocks show through the green grass. He lived in Orchard Farm, set snug in a nook between two hills, so that the west wind with the rain, and the east wind with the cold, could never have their way with it.

The farm had its name from the orchard behind the house, where apples and damsons ripened red and green and purple, among the bracken and the heather. Olaf used to play in the orchard when he was a very little boy, and later, when he was a big boy.

He used to play under the apple-trees, thinking of the tales his father told him, and particularly of the brownie that had once lived at Orchard Farm, and had gone away because his father had given it a little pair of green breeches and a brown coat for saving his wife so much of the housework.

For the farmer and his wife had been in the farm for fifteen years and more, and often, as they looked round their farm kitchen and saw the brass kettle shining so brightly over the mantelpiece, and the warming-pans glittering on the walls, and the hams hanging up among the beams, and the black kettle that was used every day singing on the hearth, and the floor that was scrubbed I don't know how many times a week, and the wooden table that was scrubbed even cleaner, they would remember ever so long before — before Olaf was born — how there had been little need to work on these things, because while the farmer's wife was sleeping in bed, a little live thing would come night after night, and clean the floor and scrub the table, and put a shine on the kettle, and make the warming-pans so bright.

They remembered those times, and they sighed to think that the little live thing had left them. They had got to love the little thing, and even now they missed it, and were sad that it had gone.

Olaf used to spend his days picking up the windfall apples in the orchard, or watching the sheep grazing on the short grass. Or he would help his mother with the churning, or watch the saucepan to see that the porridge did not boil over. But whatever he did during the day he was always ready to meet his father, and the big farmer used to come into the kitchen carrying Olaf on his shoulder, and saying, "A story, my son — a story? Shall I tell you about our own brownie?"

And Olaf would climb down and run and fetch his father's slippers.

And his father would sit down heavily in the big chair, and take Olaf up, and talk of the little live thing that used to wash the dishes and keep the whole farm as clean as a new pin.

"And tell me why he went away," Olaf said one evening.

"Well, my son," the farmer said, "there's great pride in brownies. They'll work their fingers off for love, as you may say, but you mustn't thank them. Not that you mayn't put them a saucer of good milk, with the cream in, outside the door of a night. Many's the night I've seen your mother take the saucer, and lift the latch and slip out to leave it for our brownie. But that's all gone now. You may give them milk, and they'll take it friendly as it's meant. But if you pay them, they'll take what you give them, and never come again, unless ——"

The farmer's wife interrupted.

"Don't tell the child the way to get the brownie back, or he'll think of nothing else, and go travelling over the wide world by night, and maybe never find his way back to us."

"No, lass, I won't tell him. Well, my son, you must give him nothing, or he goes. And I, fool that I was, I was so grateful to the little thing for all he had done for us that I thought to myself, 'I'll not let him work for nothing. That little one must have fairly worn his coat out slaving for us, and as for his trousers, who knows what a state they're in with him running to and fro?' So I brought back a piece of fine green cloth, and a piece of brown, and your mother there sat up all night a-cutting and a-stitching, and in the morning the things were done, as neat a little pair of breeches and as handsome a coat as ever she made for you."

"It's all true, dearie," said the farmer's wife.

"That night, when your mother put the milk out, she laid the clothes beside it in a little parcel, and in the middle of the night we heard the little thing talking to itself. 'A nice pair of breeches,' it says, 'and a coat to my back! I can come here no more, no more, till a son of the house travels the world with me and finds me first.'"

"There, now you've told him," said the farmer's wife.

"He'll learn some day, whether I've told him or no," said the farmer.

When he had once heard about the brownie who had lived in the very farm where he was born, Olaf wanted to hear of him again and again, so that in the end the farmer and his wife used to end all their tales with a little bit about the brownie of Orchard Farm.

Olaf thought of the brownie all day, and felt that, although the world away from the moorland might be very terrible, he was quite willing to travel in it, if only by doing so he could bring the brownie to the house again.

Olaf asked everyone he knew if they could tell him where to find the brownie. He asked the oldest apple-tree in the orchard — the one with the twisted trunk; but it said nothing. He asked the cows; but they said nothing. He asked the dog, and it barked about other things. Only the sheep helped him. They said nothing, but they looked as if they knew. He tended the sheep throughout the year, and watched the young lambs grow into big sheep, and watched the old sheep lying in warm places in the spring sunshine while the new lambs played about them. He wondered if the lambs learnt where the brownie was hidden, and he half thought he might be lucky enough to overhear the old sheep telling them.

The farmer and his wife saw that Olaf was happy to be with the sheep, so they sent him every day to see that they did not stray too far away over the moorland. All through the summer days Olaf used to lie among the heather, saying to himself, "Travels the world, and finds me first — travels the world, and finds me first."

At last, one June evening, as he was coming home from the sheepfolds, he heard the music of bagpipes, small and very faint, near him on the moorland.

He heard it again the next night, and the night after that, and every night, until at last, on midsummer evening, he made up his mind to follow it and find out who it was that played the pipes so daintily.

He left the path, and followed the music, walking warily lest he should lose it. It sounded softly, and always before him, as if it came from the pile of rocks on the moor where there is a cairn, and where a little mountain ash waves.

"Maybe it is the old people who live under the cairn," thought Olaf, for there is a tale in the countryside that a race of little people were buried beneath the pile of stones, and that they come out to dance on summer nights, though no one has ever seen them.

As he came near the little precipice he knew that the music was directly above it. So he started to climb up. Half-way was easy enough, and he won his way up to the mountain ash. He twisted himself over it, and rested there, wondering how to get higher, for he saw six feet of smooth rock up to the top, where there was a thick mass of heather.

There was a crack in the rock about half-way between the ash and the heather, and Olaf clung there, unable to climb farther, and knowing that if he slipped he would fall toppling to the bottom. And all the time the music of the bagpipes, scarcely louder than a concert of bees and crickets, sang close above his head.

"Oho, there — you with the music!" Olaf shouted at last.

The music stopped suddenly. A little brown face with a small white beard looked eagerly through.

"So it's Olaf at last!" it said.

A thin, brown, hairy little arm stretched down through the heather and caught Olaf by the wrist.

"Pull now," said the little thing.

And Olaf pulled, and the muscles jumped out on the hairy little arm, and Olaf found himself scrambling over the heather at the top.

He lay sprawling on the edge of a little cleft in the rock, with high walls on the sides and far away in the midsummer night the shapes of the hills covered with pine-woods that slope to the edge of the sea. In one of the walls of rock there was a little cave, and just in front of it was a wee three-legged stool that had been upset, and a little set of bagpipes on the ground beside it. "I've been waiting for you a long time," said the little brown thing, as he helped Olaf to his feet. "Look!" And he ran into the cave, and came out dragging a broom behind him, and holding a stone so polished that even in the dim light Olaf could see his face in it. "I've worn out two hundred and thirty of these brooms," he said; "and polished that rough stone smooth — all for want of proper work since I had to leave the farm."

"Are you the brownie?" asked Olaf joyfully. "Why, I've been looking for you ever since I can remember! That was why the sheep knew, I suppose — because you live on the moor?"

"Yes," said the brownie, "I've often taken the heather from their wool, when it was matted and uncomfortable. They know me."

"Will you come back to the farm now?" asked Olaf.

"Not yet," said the brownie. "We must travel the world together; and then — why, then I'll give those warming-pans a shine. It's a terribly long time since I

was at them. Your father should have known better than to pay a brownie. He should have known that we work for love, and here I have been all these long years polishing a stone, and wearing out brooms on the rock, waiting for the child of the house to grow up and to find me. And you've come," said the brownie, dancing into the cave, to fetch a little wooden cage with a big cockchafer inside. He opened the cage and took the cockchafer on his finger.

"You've found me," said the brownie — "you've found me; and now there's nothing left but the travels. For I'm to do a deal for you, and you for me, before I can work in Orchard Farm. Fly, cockchafer," he cried — "fly fast and straight, and tell my brothers in the pine-wood by the sea. Tell them to launch the boat. Tell them we are coming — Olaf of Orchard Farm and I."

He let the cockchafer fly from his hand, and it boomed away in the still air of the summer night. An owl was calling in the valley. And Olaf heard the "krrrrrrrrr" of a nightjar in the pine-woods. It might, he thought, be the brownies hammering on the boat.

And that is how Olaf of Orchard Farm found the brownie, and came to make his travels with him. And if I did not hear your mother coming to blow out the candles and tuck you into bed, you should hear to-night of how they sailed to the Glittering Harbour, where the Sultan's ships lay close together in the golden sunset, and how they won a wonderful horse, and how they found the white flower that can only be bought for love, like the brownie's services.

But that is why in Orchard Farm, although Olaf's father and mother are bent and old, and sit in the chimney corners, the kitchen floor is wonderfully scrubbed, and the pans shine brighter than those in any other kitchen of the countryside. And that is why Olaf, though he manages the farm now, and has married a king's daughter, goes always with her in the evenings to lay a saucer of milk beside the orchard wall.

"We can give him that, at least," says Olaf — "and as much love as we can spare him."

And the brownie scrubs the pans and washes the dishes, and is very, very happy to know he will never be paid for it.

THE CHILD WHO CAME BY NIGHT

A TALE OF VERULAM IN THE DAYS OF ROMAN RULE

TWILIGHT was falling on the dense, swampy forest around Verulam, and, seeing this, the tired Roman legionaries formed a camp for the night in a deserted British hill-fort. As they were busy roasting some of the cattle captured after the great battle at Walton-on-the-Thames, the scouting party returned, headed by Conan, the young British chief from Colchester, who had thrown in his lot with the invaders. Conan's eyes flashed with anger when he saw that the Romans were not only feeding in the fort, but preparing to remain there for the night.

"Cæsar," said the chief, "let your men push on"

"He will escape me! He will escape me!" he exclaimed. "What slow, sleepy gluttons these Romans are!"

He spoke wildly in his native language. The soldiers of Rome looked at the handsome young barbarian with amused eyes. Had they known that he was calling them names, they might have illtreated him; for they were proud, fierce men, these warlike Roman farmers who had conquered Gaul, and were now driving the tribes of Britain before them.

"What a triumph we shall be able to give Caius Julius Cæsar on returning with him to Rome!" said one of them as he gazed at Conan. "When we capture Caswallon, we'll have a procession of a hundred of these British chiefs, and won't slaves be cheap!"

"No more wars for me then," said another legionary. "I shall buy a British girl to wait on my wife, and about ten sturdy Britons to work my farm. I'll soon whip them into shape, and then I shall live like a patrician."

Conan understood Latin, and he stared at the speakers in silent bitterness. Then, turning on his heel, he strode towards a man in bright armour who was pacing round the camp and carefully studying the position of the earthworks.

"Cæsar," said the young chief, "why let your men stand idling here! If you do not push on and attack Caswallon at once, he will take to the woods, and you will never get him. It is only an hour's march now to his village."

"How you Britons love each

other!" said the great Roman captain. And his cold, thoughtful eyes lighted up with a strange, ironic smile. Then, changing his tone, he caught the young British chief by the shoulder, and said in a stern voice, "You mad, foolish young savage! What would happen to my army if Caswallon, your father-in-law, caught us marching in single file in these woods at night? By Jupiter, if I thought you meant to betray me as you betrayed him at Walton, I would——" He stopped, for there came a look on Conan's face that made even the conqueror of the world pause. It was not often that Julius Cæsar was fretful and ill-tempered, but a ten hours' march through steaming swamp and brambly forest had wearied him, and he was beginning to see clearly that he could not conquer Britain as easily as he had conquered Gaul.

Conan strode moodily down the hill and entered the wood stretching away in the darkness to Verulam, as the Hertford town of St. Albans was then called. He hated the Romans, for he knew that they were his real enemies; he hated himself, for he knew that he was a traitor to his country; but still, above everything else, he hated Caswallon, the chief of Verulam and the brave leader of the united tribes of Britain.

Seven years before, Caswallon had given his daughter in marriage to Conan. Four years after that, Conan's father, the King of Colchester, had made war on Caswallon. Caswallon stormed Colchester, and among the captives he made were his own daughter and the child which she had borne to Conan. In vain had the young chieftain begged that his wife and baby should be returned to him.

"They are my child and grandchild," Caswallon had said, "and they shall live with me until your father acknowledges me as his overlord."

This was a very high-handed way of bringing about a lasting peace, and it did not succeed. Maddened by the wrong done to him, Conan went over to the invading Romans, and induced his father to make an alliance with Cæsar.

Conan saw that she was his own daughter

"I will lead your army safely to Caswallon's stronghold," he said to the great conqueror, "if, instead of taking him in triumph to Rome, you will leave him in my hands." And to this Cæsar had agreed.

In spite of the insulting way in which the Roman had now spoken to him, Conan was still bent on avenging

himself on his father-in-law. For some time he roamed in the dark forest, brooding over his injuries. Then lighting on a path, he moved warily on towards Verulam, to see if the way was clear for the advance of the Roman army next morning. Drawing his tartan closely round him, so that it should not catch in the brushwood, he went forward as softly as a Red Indian. Though born by the seashore, he had as much knowledge of woodcraft as the people who dwelt in the inland forests. Even in the darkness he could tell, from the way in which the wild creatures around him behaved, if any man besides himself was about. Time after time he stopped for a minute to listen, and, hearing nothing, crept onwards to Verulam. He was about two miles from the British stronghold when a strange sound startled him. Hiding under a bush, he put his ear to the ground.

"It is a child crying," he said, as he arose. "Lost, no doubt. If it comes from Verulam it could tell me more than I could find out myself."

Very cautiously he made his way to the spot. It was too dark to see clearly, but he could just distinguish a tiny figure sitting beneath a tree.

"What is the matter, little one?" he said.

"I came out to look for my father, and I can't find the path back to Verulam."

"Who is your father?" said the young chief.

"Conan of Colchester," replied the child.

It was a rash thing to do in Caswallon's country, but Conan sat down with the child on his knee, and took out flint and tinder and made a torch of dry wood, and stared at the waif. It was a girl, fair-haired and blue-eyed, and charming to look upon. She was certainly the child of a great chief, for, instead of being clad in skins, she wore a gown of fine red linen, and round her neck was a necklace of precious amber.

"Why do you want to find your father, Mora?" exclaimed Conan, now strangely moved.

Mora recognised him in turn. Throwing her little arms about his neck, she snuggled up to him, half crying and half laughing, and said:

"Oh, daddie, daddie! I am glad I found you. Mammie is crying her eyes out because they want to hurt you."

"Who want to hurt me?" said Conan.

"Grandfather and his chiefs," said Mora. "But mammie won't let them, and I won't let them. Why, daddie, you are crying just as mammie does."

The torch Conan had lighted went out, and he sat in the dark, wild forest hugging his child in his arms, while his tears fell upon her head. Now his bitter feelings against his father-in-law disappeared. He was ashamed of himself, and his one thought was to save his country and repair the harm that he had done by helping the invaders. Taking his daughter in his arms, he entered Verulam before daybreak, and faced the terrible anger of his father-in-law.

"Kill me if you like!" cried Conan. "I deserve it. But hear me first. You must take to the woods. You don't know how strong the Roman is, but I do. He will storm Verulam in an hour, but he cannot fight in the forest."

Caswallon would not listen to his son-in-law.

"I will beat off Cæsar," he exclaimed, "and then I will give you to the Druids to be dealt with as a traitor!"

Early in the morning the Romans arrived, and, after driving in the war-chariots of the Britons, they formed a "tortoise." Each legionary raised his mighty shield above his head in such a manner as to overlap the shield of the soldier in front of him; the Roman army thus became a vast, strange, crawling creature protected by strong, brazen scales against the javelins and arrows vainly hurled down by the besieged Britons. In a short time Verulam was taken by storm at two points, and the legionaries then lowered their shields and rushed into the town — and found it empty.

For Caswallon had, at the last moment, followed the advice of Conan, and fled with all the people to the trackless forest. There the Romans dared not follow him. A few days afterwards Conan brought his brave father-in-law on a friendly visit to Julius Cæsar, and a peace was made between the Britons and the Romans which lasted for nearly eighty years.

THE LOVE OF A MOTHER'S HEART

RIZPAH had been loved by that strange and romantic man who stood head and shoulders above the tallest men in Israel, was capable of the most splendid daring, was subject to moods of the blackest melancholy, was now the shouting and trampling captain of furious war, and now the rapt and silent dreamer listening to sad music — Saul, King of Israel, the first man to reign over the most wonderful and interesting people in the world. Rizpah had been loved by this man, had been taken by him to live in a palace, had grown up in scenes of splendour and magnificence, had become surrounded by pomp and every imaginable luxury.

But she remained true to her womanhood. There was one passion in her heart which neither the idleness nor the glory of court life could subdue. She loved her children.

To this noble woman the pleasures of a life at the king's court were as nothing to the joy of watching her little sons playing with their toys, telling stories to each other, running races in the gardens, or lying asleep in their beds with flushed faces, tumbled hair, and parted lips. As they grew older, her love for them increased.

She took a glowing pride in the beauty of their faces, the grace and strength of their bodies, the reckless daring and unflinching courage of their minds. She would dream dreams of their future glory. She would picture to herself great national pageants, where her sons should figure as the darlings of the people, the worshipped heroes and adored captains of the house of Israel. Middle age had no fears for this devoted mother; her beauty would fade, her strength would diminish, but she would have the love and devotion of these splendid sons; and when she was old, and bowed, and dim-sighted, and all the glory of her life had departed, she would have at her knees and would hold on her lap and would press to her withered cheeks the young sweet faces of her children's children. So there was nothing but joy and delight and satisfaction in the heart of Rizpah.

But suddenly all was darkness, ruin, and death.

A famine had fallen upon the land in which David was king. The cause of this calamity was attributed to a crime of the dead Saul. He had put to the sword people of the Gibeonites without cause, and only in the base hope of standing well with his own people of Israel. For this reason, it was held, famine had come upon the land. Therefore David determined to make peace between Israel and the Gibeonites, that the crime of Saul might be wiped off the earth, and the frown of God be removed from the face of the sky. So he sent for the Gibeonites, and asked, "What shall I do for you, and wherewith shall I make atonement?"

The Gibeonites replied, "We will have no silver nor gold of Saul, nor of his house; neither for us shalt thou kill any man in Israel."

David pondered over these proud and honourable words, and said, "What ye shall say, that will I do for you."

Then they answered, "The man that consumed us, and that devised against us that we should be destroyed for remaining in any of the coasts of Israel — let seven of his sons be delivered unto us, and we will hang them up unto the Lord in Gibeah of Saul, whom the Lord did choose."

"I will give them," said David.

Now, the word "son" included the sons of the sons of Saul, and one of

these grandsons was the child of Jonathan. But David remembered his great love for Jonathan, remembered the vow they had made together at parting, and he could not bring himself to make a victim of this youth. So Jonathan's son was spared, and among the seven sons of Saul delivered over to the Gibeonites were the two sons of Rizpah.

It was harvest time. From a sky of unstained blue the pitiless sun beat down upon fields of whitening barley. A scream of inexpressible agony tore the air. A shriek of anguish, that froze the blood of men, echoed in the souls of all who heard it.

The procession, carrying gibbets, passed away from the city, and halted on the top of a hill. The gibbets were erected. In a few minutes seven of the sons of Saul were dead bodies hanging in the air.

And now, when the Gibeonites had departed, and the dead men were left hanging alone on the hill-top, there were seen in the air the black wings of vultures, and far off in the distance the forms of beasts of prey. From the city there issued a woman with eyes set in unending melancholy, and such a grief on her lips as caught the breath and paled the face of all who saw it. Alone and despairing, she passed out of the city, dragging sackcloth along with her.

The vultures wheeled over her head, uttering their hideous cries, and attempting to strike terror into her heart. From the distance came the roar of lions and the barking of wolves, waiting for the night.

She spread the sackcloth upon the rock, seated herself upon it, and with her arms resting on her knees, her eyes set in unutterable woe, watched the birds and thought about the dead.

RIZPAH SAT WITH HER ARMS RESTING ON HER KNEES

This picture is from the painting by Mr. Briton Riviere, R. A., and is reproduced from an engraving by Mr. H. Scott Bridgwater

The night came, and she stood up under the moon and stars, a dark, majestic figure, alone with the dead. Shapes of terror moved round about her, growls of baffled rage reached her ears, the ropes of the scaffold creaked in the night silence.

* * * *

Those who saw this scene reported it to David; for, day after day, and night after night, the mother watched by the bodies of her sons, and swept the birds away with her cloak.

Then David, remembering all the past, went himself for the dead bodies of Saul and Jonathan, and took the bodies of the dead sons, and gave them royal burial, and prayer was made to God for the people of Israel. But as for the heart of Rizpah — it was broken.

CONTINUED ON PAGE 5993

THE STAR THAT CAME TO EARTH

HIGH up in the midnight heavens hung a little star, and round about, all its little brothers and sisters, of whom there was a very great number. Now and then the sky would say: "Little stars, hold fast! If you don't, you'll drop down, and then your light will go out."

At last one of the little stars grew livelier than usual. It thought it would try holding on by its legs and letting its hands hang down. But when it let go its hands, its feet went also, and — swish into the depths below plunged the little star, deeper and deeper. When they saw what had happened, the other stars were dreadfully shocked and held on tight.

But the star that had fallen headlong went rushing on and on till it reached the earth. And then, alas! it fell plump into the middle of a big muddy puddle, where it lay sad and shaken, and quaking with fright. Shivering with cold, it began to crawl out. It was dumb and half blind, it had a soiled face, and could give no more light.

An old crow that was limping along near the spot cried out: "Oh, what a hateful star you are!" and a mouse which was just then peeping from its hole to see whether it was going to rain, and whether it would be safe to cross the fields, exclaimed: "That isn't a star, that's only a lump of mud." These words terrified the star so much that it cried bitterly. And, feeling dreadfully ashamed of itself, it started to run till it came to a pond.

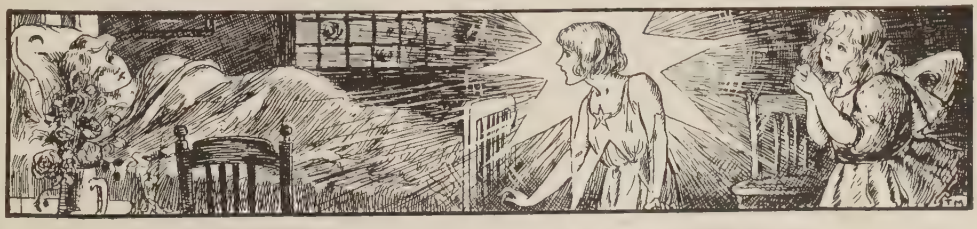
"Now," thought the star, "I'll take a glance at myself and see what I really look like." And it peered down at its own image in the water. But it soon turned its face away, for what it saw was a dirty and dim star — oh, so dirty! So it started running again, and ran until it was tired out and had to sit down. And as it sat there, filled with grief, round flew a little water wagtail and lit on some stones on the edge of the rivulet where the poor little star was sitting.

The tiny bird perched and frolicked about gaily, and then dipped its silver head into the water and let the silver drops run down its beautiful feathers.

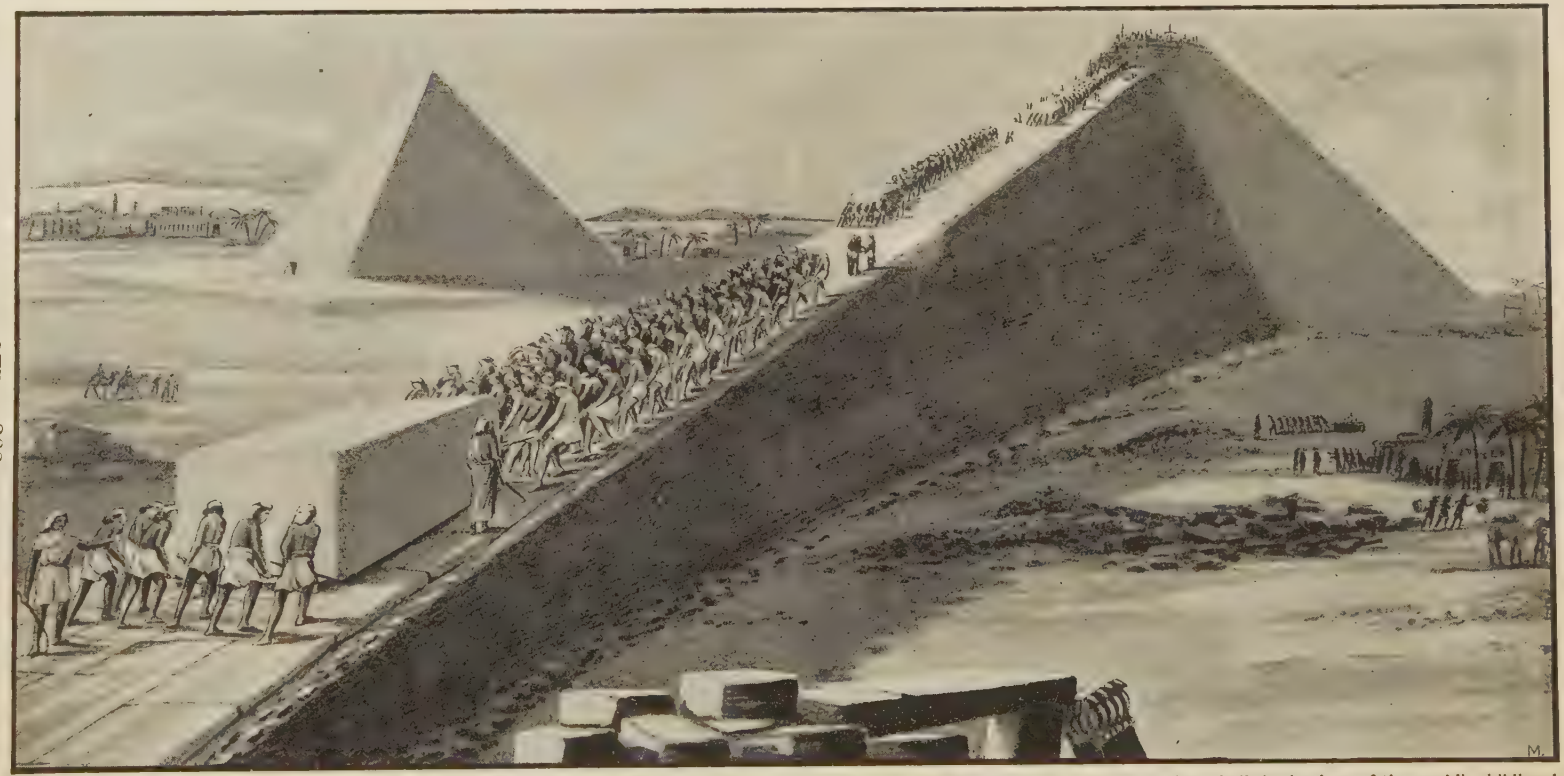
"I, too, must try that," thought the little star. So it climbed carefully down and began to sprinkle its face with drops of water. Again and again it thrust its hands in and dashed the pure crystal drops over its face. But it was all of no use; no matter how much water it poured over itself, the dirt would not be washed away. And the star became sadder than ever, and wandered on farther and ever farther.

When evening was come and it was already twilight, it spied a little girl sitting on a stone and crying as hard as she could. Then the star stole up till it was quite close to the child, and, sitting down beside her, gently stroked her hair. The girl lifted up her head, and her tears dropped on the dirty face of the little star. And wherever the tears touched the face of the star it became spotless and bright and shining once more. But the little girl kept on sobbing because her mother was very ill and likely to die. Then the star comforted the child.

So it went to the home of the little girl, where her mother lay wan and thin, and the little star poured a flood of bright and pure light over the poor woman, and made her bright and cheerful and strong again, and then the little girl became very happy.



HOW 100,000 SLAVES SET UP A MOUNTAIN IN THE SANDS



The modern world has always gazed with amazement at the Pyramids of Egypt, and wondered how such gigantic monuments could have been built in the days of the world's childhood. But we are almost sure that they were built as shown in this picture. When the first stones had been fixed in their place a bank was made up to the top, sloping down to the level of the ground. Up this slope the next great stones were dragged, and when these had been fixed the slope was carried to the top of them. So, as the pyramid rose higher and higher, the sloping way rose too, until it became a wonderful road for thousands of slaves to walk along, dragging the granite behind them. The road was greased to make the dragging of the great stones easier, and behind each stone were slaves with wedges to help the stone along. By the time the pyramid was finished, this roadway must have been some miles long. When at last the pyramid stood complete, and the final stone had been placed on the top, the inclined plane was taken away. It took 100,000 men thirty years to build this Great Pyramid.

5888

A caravan of pilgrims crossing the desert on their way to Mecca

CONTINUED FROM PAGE 5842.

MOHAMMED AND HIS BOOK

THE founder of the Mohammedan religion was born near the year 570 A. D. at Mecca, the place which all Mohammedans honour to this day. He belonged to a distinguished tribe, which had special claims in regard to religion and was supposed to be descended from Ishmael. As a youth he acquainted himself with the teachings of Moses and of Christianity.

After his visits to Syria, Mohammed returned to Arabia, and there he had a kind of vision, in which a being whom he believed to be a messenger from the Most High ordered him to go forth and preach. This he did, and in the year 622 he and his followers left Mecca for Medina, a name which is now equally sacred with Mecca to all Mohammedans. As time went on, Mohammed acquired great power, and from being in the first place a preacher and teacher and reformer of religion, he became more a practical man, a law-giver, and even a soldier. In his later years Mohammed ceased to be a thinker, and we have little other than the record of a man of great personal power and vigour who desired dominion over his fellows, and at last became the master of Arabia.

Mohammed wrote a book called the Koran, which is for all Mohammedans what the Bible is for Christians. It is really a book of laws which, according to Mohammed, were revealed to him by God or by His chief angel. We who read these pages cannot believe that the Author of the Universe dictated these laws to Mohammed in the fashion which he stated.

"There is one God, and Mohammed is His prophet." This is the first great doctrine of Mohammedanism. Mohammed also taught that men must pray at stated times, wherever they are, and Mohammedans to this day carefully obey these laws. Mohammed also taught almsgiving, or charity, as a duty. He believed very keenly in self-control and in the avoidance of dangerous or injurious pleasures.

He teaches that his followers are not to gamble, and that they are not to take wine. The Mohammedan world, therefore, always has been, and still is, sober. We send Christian missionaries to convert Moham-

medans, and sometimes Mohammedans come to this country to see our great cities, and learn about the drunkenness in them. It is not always easy to persuade them, then, that our religion is better than theirs.

There are many who now suppose that alcohol is one of the most important causes which make races decay and come to an end. Such people believe that the sober Mohammedan races, such as we find in Turkey, being untouched by this enemy of mankind, are not to be looked upon as outclassed and done with in the world's history, but are more than likely, when they choose, to be among the most important and powerful makers of future history.

It is often declared that Mohammedanism degrades women, but, though this is true in some measure, it should be remembered that Mohammedans at least care for their women, and do not leave countless numbers of them, as we do, to the mercy of chance and hunger and all manner of cruelties. Mohammed himself had a good wife, with whom he lived very happily, and she was the first to believe in him when he started his mission.

Still, it is true that the Mohammedan woman is looked upon as a person who should attend her master; it is true that she has a very small amount of liberty; that, until just our own day, she has had no education, and that nowhere throughout Mohammedanism could we find the idea accepted that women should have any share or part at all in the public work of the world. The rule is to shut women up very closely, and to allow only other women to see them. This has many cruelties and evils associated with it. One of the cruelties we find in India, for instance, is that Mohammedan women who are ill can have no help unless, as is now happening, they are helped by Christian women who have learned to be doctors, and who, being women, are allowed to enter the places where the Mohammedan women live, and where no man except the lord and master of the house would be allowed to go.

The Mohammedan system means also that the lives of women are made, on the whole, very empty and idle; that they are not allowed to develop their minds in any way except, perhaps, in such things as sewing and sketching; and it means, too, that the advice and the wisdom of women are scarcely employed in public affairs. A general mark of Mohammedan nations is that they do not move forward. They are now as they were ages ago.

History shows us many instances where men have started well, and then seem to have lost the first beauty and purity of their lives. It seems quite clear that this was so with Mohammed, whose life did not fulfil its earlier promise. We see this if we take, for instance, the Koran. In the earlier part of it we find the author setting forth great and beautiful ideas, as, for instance, the great idea that God is One.

But later, in those chapters which were dictated by Mohammed as he grew older, we find that the character of the book changes considerably. The beautiful thoughts begin to disappear, and more and more the book comes to consist of orders and regulations, designed for the governing of his followers, and these rules, though not in themselves very notable or beautiful, were included in the Koran, which Mohammed always declared to be really the work of God.

This change in the character of the Koran corresponds to the change in Mohammed's own mind and character as he grew older. The youth who cared for nothing but to go forth and preach the truth, who cared nothing for money or possessions, who drank no wine, ate little, thought it beneath his dignity to wear too comfortable clothing, and often went without food and sleep, became in course of time a lover of power and authority.

The lesson we learn from Mohammed's life is the lesson of Wordsworth in his great poem, where he declares that children come from heaven, which is the real home of all of us, and that as they grow older and older they are apt to travel farther from heaven, to lose the "vision splendid," and to be taken up with the cares and interests and worthless prizes of the world.

AN IMPRESSIVE SCENE IN THE EAST

TEN THOUSAND MOHAMMEDANS AWAITING THE SIGNAL TO PRAYER

Every Mohammedan is required by his religion to pray five times a day; many neglect to do this, although, wherever there is a mosque, the muezzin, a kind of minister, calls the people to prayer from the top of the minaret. The call, which is sung to a simple melody, is most impressive at night.

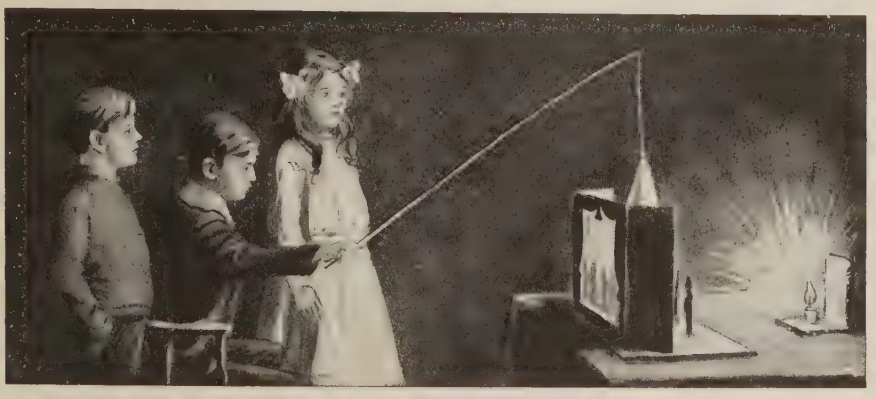
TEN THOUSAND MOHAMMEDANS BOWING IN PRAYER

To say the devout Mohammedan performs his prayers is no exaggeration, for prayer consists largely of exercises of the arms, and attitudes of the body. Part of the time he stands, part kneels and part prostrates himself, and the face of the worshipper must always be turned in the direction of Mecca.

THE NEXT STORY OF MEN AND WOMEN IS ON PAGE 5941.

CAPITOL SQUARE IN RICHMOND ON THE JAMES

The Capitol Square in Richmond once seen will never be forgotten. The dignified capitol building on the right was planned by Thomas Jefferson, on the model of the Maison Carrée at Nimes, France. During the Civil War, the Confederate Congress met in this building. To the left is the City Hall. Several fine statues adorn the grounds, and in the Capitol itself is the only statue of Washington modelled from life. It is by the great French sculptor, Jean Antoine Houdon.



A LITTLE SHADOW THEATRE

CONTINUED FROM PAGE 5668

By means of scissors, paste, cardboard, paper, and a piece of wood, any clever boy or girl can make an amusing toy that will provide plenty of fun for a Christmas or New Year party, and will be equally interesting for grown-ups and for children. The toy is a shadow puzzle game, and we make it in this way. We take some stout and stiff cardboard, and cut out two pieces 15 inches high by 6 inches wide. Then we cut another piece 15 inches high and 18 inches wide, and from the centre of this larger piece we cut out a space about 12 inches high and 12 inches wide, so that what is left will look very much like the wings and curtain of a theatre. We now take two strips of gummed paper, and fasten the two narrow pieces of card to the larger piece, one on each side, so that the paper will form hinges, and the side pieces can be turned at right angles to the middle card. Strips of linen pasted or gummed on to the card make even better hinges than the gummed paper.

The picture on the next page shows how this screen-frame will look. To make it neat we can cover one side of it with black paper—not the side on which the linen or paper strips are pasted. Then, turning the screen over, we paste over the opening which we have cut out a piece of ordinary semi-transparent tracing-paper. The paper should be as white as possible. The screen is now ready, and we can put it aside while we make the rest of the toy.

Now let us cut out four pieces in stiff cardboard, each about three inches high, and these should be, if possible, rather fantastic and humourous, as that will add to the fun of the game. Any kind of upright figures will do, and may be copied from books, but if there is any difficulty about drawing men, four upright pieces of card may be cut into any kind of irregular shapes, and will serve for the purpose of the game.

A piece of wood, 12 inches long by about 6 or 7 inches wide and ¾ of an inch thick, is wanted for a stand for these figures, and running the whole length of the board we cut six grooves at regular intervals, just wide and deep enough to hold the figures upright when they are stood in these grooves.

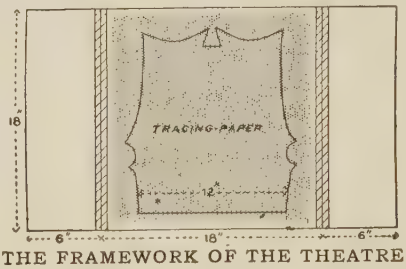
We now take some stiff paper and make four extinguishers, by rolling up the paper in the same way as for a grocer's sugar-bag, sticking down the edge or flap, and cutting the opening evenly all round. Then we sew a little ring in the top of each. The extinguishers should be about 4 inches high and 2 inches in diameter at the bottom.

Next we get a thin stick about 2 or 2½ feet long, and in the end put a nail or drawing-pin, and to this fasten a straight piece of wire about 12 inches long with the end turned up slightly to form a hook. The wire should be stout enough to remain stiff and straight. All we want now for our game is an ordinary candle in a candlestick.

Any number of people may play at puzzle shadows. Stand the screen on the table, with the wings folded at right angles, as shown in the picture on this page, and put a lighted candle some distance at the back of it. One who does not take part in the game acts as master of the ceremonies. He puts the wooden stand between the screen and the candle, and then places the four figures in any of

the grooves—not, of course, all in the same groove.

All other lights in the room except the candle are turned out. The first player now takes his place before the screen, and he must on no account look round or over it to see what is behind. Hooking the wire holder into the ring of one of the extinguishers, he lifts this over the top of the screen, and, guided only by the shadows of the figures and extinguisher on the paper front of the screen, he tries to put the extinguisher over one of the figures. So long as the shadow of the extinguisher is above the shadows of the figures it may be moved about in any direction, but directly it touches or begins to cover the shadow of a figure it must be let down at once. The holder is gently unhooked, and another extinguisher is lifted over the screen.



THE FRAMEWORK OF THE THEATRE

THE LITTLE MEN FOR THE SHADOW THEATRE

Great is his astonishment when he finds, as is usually the case, that instead of extinguishing all four figures, he has set down the extinguishers at quite long distances from them. Nothing is more deceiving than the shadows on the screen, and as each player takes his turn the candle or the figures are moved so that the shadows do not appear in the same places as before. The player who covers most figures wins the game, or, if it is desired to prolong the game, points may be given for each figure covered, and these points added up at the close.

It is essential that the master of the ceremonies gives no indication either by word or by the expression of his face as to how a player is succeeding while he is endeavouring to cover the figures; and it is important, too, that the candle be kept well back, so that the extinguishers, as they are moved about, cannot get into the flame and catch fire.

HOW TO MAKE AN HOUR-GLASS

In the old days time was measured by an hour-glass—that is, an object very much like an egg-boiler, only larger. These were two bulbs of glass with a small passage between them, and one of the bulbs contained a quantity of sand that took exactly one hour to run through the opening into the other bulb. Then, when it was all through, the hour-glass was reversed, and the sand ran back into the first bulb, thus measuring another hour, and so on.

Any boy or girl can make an hour-glass for practically no cost at all. We take two bottles of the same size and shape—a square and squat shape is the best. Then we take a quantity of the finest washed and sifted sand, and put this into one of the bottles. To get the sand we may buy the finest sand at a paint-shop, and carefully sift it through coarse muslin so as to get only the finest. Now over the neck of the bottle we tie a piece of fine indiarubber bladder, and prick a hole in it sufficient for the sand to trickle through in a fine but constant stream. Turning this bottle upside down on top of the other, as shown in the picture, we let the sand trickle for an hour and then take the top bottle off. We remove the indiarubber covering, and tie it on the second bottle, into which the sand has run for exactly an hour. Then, removing the surplus sand from the first bottle, we invert the other over it, and let the sand trickle back, checking it to see that it takes exactly an hour. Then, keeping the bottles one over the other in the position shown in the picture, we bind some linen round and round the necks to keep them together, and our hour-glass is complete and ready for use. In removing the indiarubber covering from one bottle to the other we must be careful not to tear the hole any larger, or the sand will take less than an hour to pass through again. Also, before beginning, sand and bottles must be perfectly dry.

GOOD GAMES FOR A CHRISTMAS PARTY

To make a Christmas party a thorough success there is nothing like having plenty of variety in the games. There is no chance then of the boys and girls getting tired.

A very good game for a large or small party is that of "guessing with the wooden spoons." One of the party—a girl, for instance—is blindfolded, and sits upon a chair. She is then given two large wooden spoons, such as are in common use in every kitchen for stirring puddings, cakes, and so on. One after another the other boys and girls come up to the blindfolded sitter and stand or kneel before her, and she has to guess who each one is by simply feeling him or her with the wooden spoons, as shown in the first picture on this page.

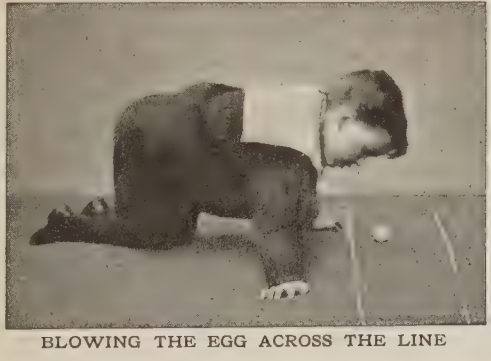
GUESSING WITH THE WOODEN SPOONS

The task is very much more difficult than it looks, and there is great fun as the spoons go over the face and body in the attempt of the blindfolded player to discover the identity of the other.

Of course, any outburst of laughter when the spoons are going over our faces would disclose our identity, so we must keep perfect silence. When anyone's identity is guessed, he has to be blindfolded and must take the spoons. We must be careful when using the spoons to touch another player with them quite lightly, so as not to hurt him; and any player who wears glasses should remove his spectacles.

Another good game for a Christmas party is that of blowing the egg. Two pieces of cotton or tape are stretched across the carpet. An ordinary hen's egg—not too large—which has had the entire contents removed without cracking the shell—is laid exactly midway between the tape lines. A girl player then makes a little paper fan out of half a sheet of notepaper, and kneels down on one side of the tapes, and a boy kneels down on the other. The girl then has to try to fan the egg-shell across the tape on the boy's side, and he has to try to blow the shell back across the tape on the girl's side. The one who first drives the egg across his partner's line three times wins the contest. Nothing must be used by the girl but the paper fan or her hand; and the boy, on his part, must simply blow with his mouth.

Blowing out the Christmas candle is a good old English game that is amusing. A lighted candle is placed upon a table or chair, and each player is, in turn, blindfolded and stood with his back to the candle, about two feet away. He is then told to take three steps forward, turn round three times, take four steps towards the candle, and then blow it out. In the majority of cases the blindfolded player will lose all idea of distance and position, and when he blows will be in quite another part of the room from that in which the candle stands. Of course it is wise to have a player or two standing by the side of the candle to prevent any blindfolded player who does happen to get near it from going too close to the light.



BLOWING THE EGG ACROSS THE LINE

FANNING THE EGG WITH A PAPER FAN

A game requiring a good deal of ingenuity is that of Introductions. The idea is that a father and mother, and son or daughter—three persons in all—are being introduced to the company.

The names have to be selected in such a way that the last name will form a familiar word, and this requires skill if it is to be done well. Here are some examples.

Mr. and Mrs. Terry and Miss Terry (Mystery).
Mr. and Mrs. Chovy and Anne Chovy (Anchovy).
Mr. and Mrs. Builder and Master Builder.
Mr. and Mrs. Moore and Owen Moore (Owing more).
Mr. and Mrs. Fulness and Grace Fulness.

The game of Magic Music is exceedingly interesting for a large Christmas party. One player goes out of the room, and some small object is hidden. Then the player is called into the room, and he has to find the object, being guided to the place by the music.

When the music gets softer the searcher is getting away from the hidden object; and, on the other hand, when the music gets louder it is an indication that he is getting near. The person at the piano must, of course, be a good player, must know where the object is hidden, and must have a clear view of the searcher as he goes from place to place.

Still another game that causes great fun and gives plenty of opportunity for ingenuity is called "What is My Thought Like?" One player goes to all the others in turn, and asks "What is my thought like?" and each player mentions some object. Then the thinker declares his thought, and each of the other players in turn has to say why this thought is like the object he mentioned. The game might go on something like this.

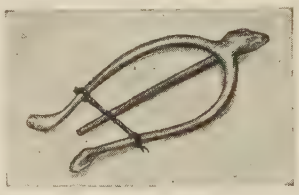
"What is my thought like?"

Sugar, a feather pillow, a blush rose, a kitten, air, and so on, are some of the answers given.

"I thought of a little girl of three. Why is she like sugar?"
"Because she is sweet."
"Why is she like a feather pillow?"
"Because she is soft to the touch."
"Why like a blush rose?"
"Because she is pink."
"Why like a kitten?"
"Because she likes play."
"Why like air?"
"Because she is light."
And so the game goes on.

A JUMPING FROG MADE FROM A WISHBONE

We all have poultry at Christmas-time, and there are plenty of merry-thoughts, or wishbones, to be had. It is quite easy from one of these to make a jumping frog; something like those wooden ones that are sold in the streets of any city. We take the wishbone, and first of all thoroughly clean it, leaving it a day or two before using. Then we take a piece of strong, thin string, and, doubling it, tie it securely to the two arms of the bone about an inch from the ends, as shown in the picture. Now we take a strip of wood a little shorter than the bone, and about half an inch from one end we cut a notch right round. Slip the stick half-way through the doubled string, midway between the two arms of the bone, and turn the wood round and round until the string is twisted up and shows a stout resistance. Then pull the stick through until the string clings round the notch. Cut out of thin cardboard the rough resemblance of a frog, and stick this with glue or mucilage to the top of the wishbone. All that is now needed is a touch of cobbler's wax on the underside of the bone where the end of the stick will touch it when it is pulled over as in the picture. Having pulled the stick over, lay the bone, or frog, on a table, and in a moment or two the wax will cease to hold, and the springiness of the twisted string will cause the bone to jump quite a distance.



HOW TO DRESS A CHRISTMAS-TREE

All boys and girls enjoy a Christmas-tree, and, indeed, Christmas would not seem Christmas without the tree. Perhaps the most enjoyable thing about the Christmas-tree is the dressing of it, and a few hints upon how to do this and how to select a good tree will be helpful to us. First of all, in selecting a tree we should see that the stem is firm, the tree well shaped, the branches drooping gracefully, and that these branches are fairly firm, so as to support properly the things hung upon them.

It is a great mistake to overload a Christmas-tree, and heavy articles should not be hung upon the branches. There should always be plenty of candles on a tree, and these should hang perfectly upright, or we shall find that so soon as they are lighted the grease will drop upon the tree and table. There should also be a large number of silvered balls, to reflect the light of the candles.

We must be very careful not to hang any flimsy or inflammable toys above the candles, for when the candles are lighted the toys hung immediately over them might catch fire, and the tree would soon be ablaze, endangering the house.

At the top of the tree we place a Father Christmas, dressed in bright scarlet; and the toys should be arranged at intervals, the articles of different sizes and shapes being placed so that the tree looks well balanced.

The tree should be placed in a fancy flower-pot, or, if an ordinary red earthenware pot is used, this may be covered with crinkled coloured paper. To light the candles on a Christmas-tree a long taper is the best thing to use, and to put them out it is wise to have an extinguisher tied to a stick.

A USEFUL PRESENT FOR A MAN

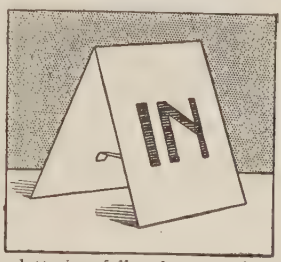
We all know how difficult it is to think of a present for a man which does not cost much, and is not connected in some way with smoking. This one has the advantage of being suitable for either a man or a woman.

It is one of those small stands which are kept on a desk or in the entrance-hall. It has IN on one side and OUT on the other, and the owner usually turns it round so that the side which faces callers shows them whether he is in or out at the moment. It is made of pale green linen and shaped like a needle - book cover — without leaves, of course. The size is that of an ordinary postcard. We can therefore use two cards put together to stiffen the sides. First, we must embroider the two words on the linen. We must note well how they are arranged in the first picture, one reading one way and one the other, and also how the letters themselves are formed, and copy them carefully in the required position in pencil. The position can be found easily by placing the postcards on the linen so as to leave a small space, about an eighth of an inch, between the cards to form the hinge, and enough stuff all round to turn in.

The first picture shows how the lettering falls, the second how to embroider it, and the third, the stand complete.

To embroider our letters successfully, we must work them over quite thickly. This is best done by stitching them first with a darning stitch, as in the second picture, which shows clearly how the whole letter is worked. Note that the darning stitches, or pad, go up, and that the "covering" stitches go across. We had better work them in black or dark green mallard floss silk and, when they are finished, press them very carefully on the wrong side with a warm iron.

Next we lay our stiffening cards on the linen, and stick them in position. We turn in the edges, and then lay a similar-sized piece of linen over the whole, turn in the edges of that to fit, and sew very neatly all round the edge, over and over, in green silk or cotton the colour of the linen. The second piece of linen, of course, is laid over the *wrong* side of the card, to hide the turnings and make it all neat and tidy inside.



We shall need a few stitches along the hinge to keep it from bagging underneath, keeping big stitches on the underside of the hinge and tiny ones on the outside.

If we have left our hinge too large it will not allow the stand to stand up, in which case we must sew a little piece of green baby-ribbon in between the sides underneath, as shown in the third picture.

If we think that the pale green would soil too quickly, quite as good an effect can be obtained by using a dark green linen instead —a dull, art green shade—and embroidering the letters in old gold silk.

A HAIR-TIDY THAT COSTS A PENNY

A useful little Christmas gift is a hair-tidy made out of a small pocket-handkerchief with a coloured border, a piece of stiff white paper, and three-quarters of a yard of coloured baby-ribbon to hang it up by.

Many of us who have not very much pocket-money may be glad to know of such an inexpensive little gift. We all know what a pleasure it is to give presents, and we often wish we had enough money to buy up all the pretty things we see in the shops at holiday time. Here is something which we can all afford, and it is so simple that the youngest among us will have no difficulty in making it. It sounds almost too cheap to be nice, but when neatly worked it is astonishing what a dainty little bag can be made from these handkerchiefs, which can be bought at any dry goods shop. As the baby-ribbon will come to less than a nickel, we have not included this in the cost. Many people keep a little stock of it by them, so that we shall, no doubt, be able to get a short length of it for nothing. To make the tidy we fold the handkerchief in two, and turn back each half till it nearly, but not quite, meets the centre fold. Then we run a gathering thread in each side, half an inch from the top, and again about half an inch lower down.

THE LITTLE TIDY COMPLETE

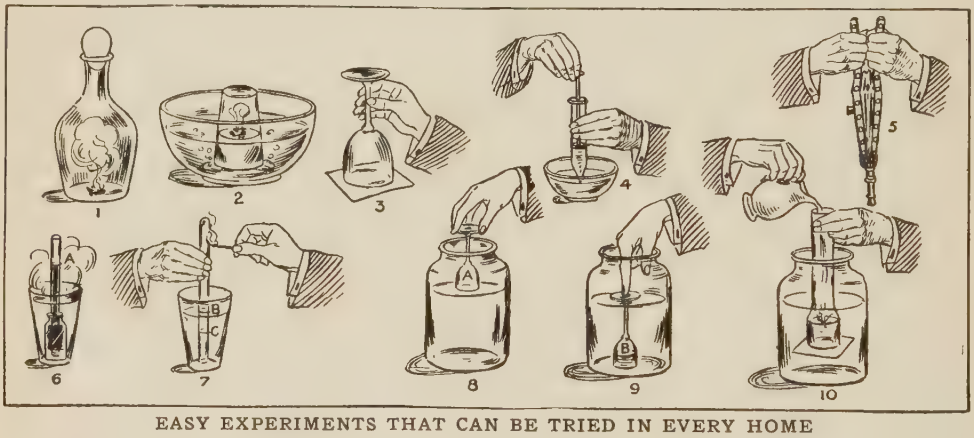
Take a piece of stiff paper, four and a half inches wide by five inches long, and stitch it inside the handkerchief to form a stiff lining. Stitch the two corners together, fasten on the baby-ribbon with two little bows, and the tidy is complete.

SIMPLE EXPERIMENTS WITH AIR AND WATER

We can learn a great deal of science from the most familiar objects in our homes, and an interesting half-hour may be spent in performing simple experiments that will teach us much that we ought to know.

First of all, we can perform an experiment that will show us how the air, that is invisible and does not seem to have any weight, is actually pressing down upon us and upon everything on the earth's surface. We take a wide-necked bottle, such, for example, as the water-bottle in our bedroom, and we also prepare a hard-boiled egg to help us in our experiment by carefully removing all the shell.

Now we put into the bottle a piece of lighted paper, and, after a second or two, place the egg in the neck of the bottle as though it were the stopper. The egg will, of course, remain there just as if it were in



EASY EXPERIMENTS THAT CAN BE TRIED IN EVERY HOME

an egg-cup. At least, that is what some of us would expect. But if we watch the hard-boiled egg we shall see, after a time, that it is gradually going down the neck of the bottle as though it were being sucked in. Then, suddenly, it will enter the bottle with a loud noise. What is the explanation of this? It is very simple. The burning paper heated and expanded the air in the bottle, and some of it was driven out through the opening at the neck. Then the egg was placed in the neck and the opening was stopped up. Presently the air in the bottle cooled, and, as it lost its heat, it contracted, or filled less space, so that there was a partial vacuum in the bottle, and the air outside pressing upon the egg drove it into the bottle.

There is another simple experiment which shows clearly the pressure of the atmosphere. Take a basin of water, and on the surface of the water let a cork float. Now place on the cork a piece of lighted paper, and over these invert an empty glass, pressing it down gently into the water. Bubbles will be seen to come from under the glass. This is the air being driven out owing to the fact that the heat from the lighted paper has expanded the air, and the glass will not hold it all. A few moments after, the water is seen to rise in the tumbler.

Still another experiment will prove that the air exercises a pressure, not only downwards, but upwards as well. We take a wine-glass, and fill it carefully up to the brim with water. Then we take a thin sheet of paper, and place it on top, so that it touches both the surface of the water and the rim of the glass. Now, holding the paper carefully in position, we turn the glass of water upside down, and the water will remain in the glass apparently suspended.

If we should like another experiment to prove the downward pressure of the air, we can use our basin of water again, and take a small ear-syringe such as is found in every house. We fill it with water, and invert it with the point in the water in the basin. Now we press down the rod and empty the syringe. But directly we pull up the rod again the water rushes up and fills the syringe. The reason of this is that the pressure of the air all over the surface of the water in the basin drives the water up into the syringe.

An interesting experiment, this time with a pair of ordinary domestic bellows, proves that the pressure of the atmosphere is exerted, not only above and below, but sideways and in all directions. Having blown all the air out, we completely stop up the nozzle and the vent-hole with corks, and then, if the bellows are in proper order and are air-tight, no boy will be able to open them, no matter in what position they may be held. The air outside pressing equally on all sides holds the bellows together.

All bodies, solids, liquids, and gases alike, when heated expand—that is, fill more space—and two simple experiments will show this clearly in the case of liquids and gases. We take a small bottle, fill it with some coloured liquid, such as water in which a little Glyco-

Thymoline has been dropped, and cork it up. But we must see that the cork is pierced, and a piece of glass tube, open at both ends, inserted. Now, if we plunge the bottle into a vessel of warm water, as seen in picture 6, the coloured liquid will be seen to rise in the tube to A.

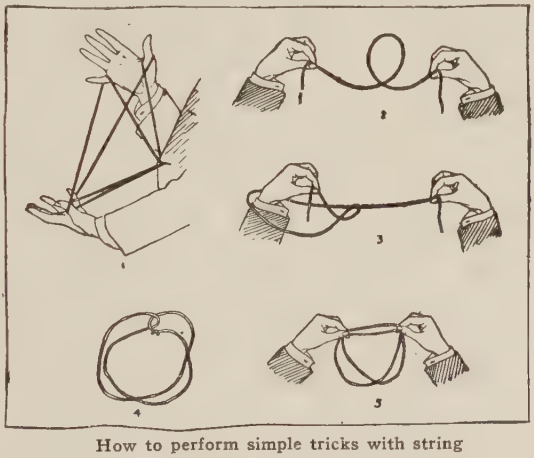
To show that gases expand we must use a glass tube closed at one end. We take the tube, which is, of course, full of the gas that we call air, and put it into a tumbler of water, as shown in picture 7. The water rises to a certain point, B. Now we hold a lighted taper to the upper part of the glass tube, and, after a second or two, the water descends in the tube from B to C.

Another experiment with a wine-glass and a jar of water will show that gases, such as the atmosphere, possess the property of compressibility—that is, they can be pressed into smaller space. We take the wine-glass and invert it on the surface of the water. The glass is full of air, which occupies the whole of the space A in picture 8. Now we press the glass down to the bottom of the jar, and we see, as in picture 9, that some water has risen in the glass, and the air that formerly occupied the whole glass now fills only the space B.

There is a simple experiment to show that liquids, like gases, exert a pressure equal in all directions. Take a common lamp-chimney and place below the widest opening a piece of cardboard. Hold this against it and plunge the whole into a jar of water. Now remove the hand that held the cardboard, and it will be found to remain in position, the upward pressure of the water holding it against the glass. Now pour water gently into the chimney from above; the card continues in position until the water in the glass reaches the level of the water outside the chimney.

THINGS TO DO WITH A PIECE OF STRING

HERE is an excellent trick that is quite easy to perform, and needs no other apparatus than a piece of string about five feet long. We tie the ends together, and then pass the doubled string through a buttonhole of our coat. We then put our thumbs through the looped ends, one at one end and the other at the other, and, having done this, hook our little fingers into the upper strings of the opposite hands. If we draw our hands outward the appearance will be as seen in picture 1, and the string will look so entangled as to suggest that it will be a task of some difficulty to release it from the buttonhole. But, as a matter of fact, the release may be made almost instantaneously, by simply disengaging the right thumb and left finger, and pulling the hands apart. If this be done quickly, it will appear to those looking on that the string has torn the buttonhole.



How to perform simple tricks with string

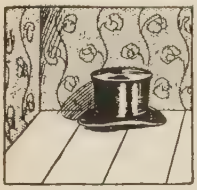
Another trick with string that can be done quite easily after a little practice is that of tying a knot on the left wrist without letting the right hand get near it. We take a piece of fairly thick and heavy string that is also very pliant; holding one end between the finger and thumb of the left hand, we take the other end in the right hand, and, with a rapid jerk, throw a loop toward the left hand, as shown in picture 2. The loop can, with a little practice, be made to fall over the left wrist, as in picture 3, and if, at the moment this happens, the right hand pulls back the end that it is holding, the string will be tied tightly round the left wrist.

A trick that creates a good deal of astonishment is this. Take a piece of string about three feet long, and join the ends; then placing one hand through each end, give the string a complete twist, and put into the left hand the end that was in the right hand. The string is now shown as in picture 4. Passing the right hand quickly along the double string, we hold the place where the string crosses, so as to conceal it, as in picture 5, and we ask a friend to cut the string right through at the part we are holding between our two hands. They do this, and there are four ends, showing that the string must now be in two pieces. Then we offer to join up two of the ends with our teeth; and, putting all four ends in our mouth, with a pass or two, pull out the string, and there is only one long piece. The explanation is, that owing to the twisting of the string and the particular way in which we hold it, so that the friend must cut somewhere near our right hand, the string is cut into a long piece and a very short piece. We put the four ends in our mouth, and with our tongue remove the small piece.

HINTS AND TRICKS FOR ODD MOMENTS

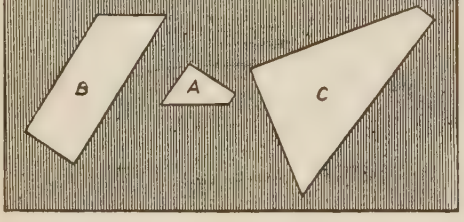
HOW HIGH IS THE HAT?

Our eyes play us many tricks, and they often deceive us as to the size or height of anything. The apparent height of a hat, for instance, may be very much greater, or it may be less, than it really is. There is an interesting experiment by which we may prove this to ourselves. We should place some mark on a wall to show how high up we think the top of a tall silk hat will come when the hat is stood on the floor against the wall. It seems a very simple and easy thing to give a fairly accurate estimate, but we shall probably be hopelessly out. Let us mark the estimated height first, and then see how accurate we are, by placing the hat against the wall, as shown in the picture. It will spoil the amusement and stop the surprise if we say here whether the estimate is likely to be greater or less than the real height.



TO FORM A SQUARE

Cut out ten pieces of card—two of the size and shape of A, four of B, and four of C—and then arrange them in such a way that they will form a perfect square. When they



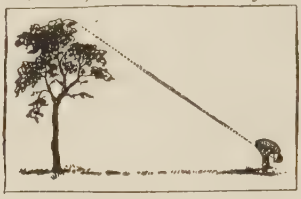
are jumbled up it seems impossible that they could be made into a square, and when we try to put them together it seems equally impossible; but with perseverance we shall be successful.

A GOAT MADE FROM A PEAR

Here is a picture of a goat made up from a pear with the aid of four matches, an almond, and some raisin-stalks. We stick the matches into the pear as shown, then we get a well-shaped almond from its shell to form the head, and into this we stick curved raisin-stalks for horns, two or three stalks for a beard, two short pieces of stalk for ears, and the whole is fixed to the end of the pear by means of a stalk or piece of match, thus forming the neck of the goat. A hole is cut on each side of the almond for the eyes. With a little ingenuity and practice we can make other animals from the different kinds of fruit.

CURIOUS WAY OF MEASURING A TREE

Some of the natives of South America have a curious way of measuring the height of a tree or tower. They turn their back to the tree, and walk away from it until they come to a spot where, keeping their backs to the tree, they can, by stooping down and looking between their legs, see the top of the tree. Then they make a mark on the ground, and the distance from this mark to the base of the tree is, roughly, the height of the tree. Any boy can thus tell within a foot or two the height of a tree or building.

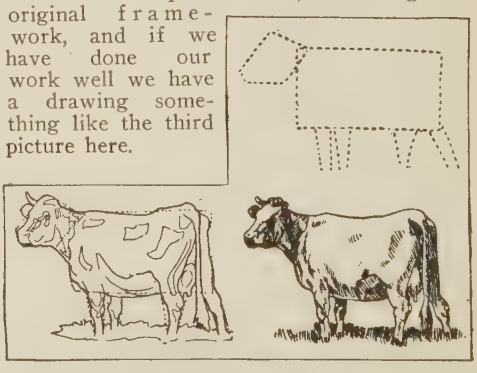


WRITING WITH INK ON WOOD

If we have ever tried to write with pen and ink upon ordinary wood, we know how difficult it is. Directly we have written the words the ink begins to run, and if our pen has been well filled the words become, in a few moments, a mere blur, no matter how well they may have been written. To avoid this running of the ink, there is a very simple precaution which we can take, and that is to rub the wood with powdered resin, when we shall be able to write upon it with ink quite easily and well.

A SIMPLE WAY TO DRAW A COW

Here is a simple way of drawing a cow. We begin by making a rough pencil outline of the shape of the cow, as in the first picture, getting the proportions correct. Then we begin to fill in the details of the animal, as in the second picture, and it will be found that the rough outline first drawn is a great help in making our sketch. When we have the cow pencilled in completely, we ink over the lines that are to remain, then rub out the pencil-marks, including the original framework, and if we have done our work well we have a drawing something like the third picture here.



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A GREAT DESCRIPTION OF A GREAT EVENT

GOOD historians always write under special inspiration when the course of their story touches some great event. That is to say, the writer, coming to a worthy subject, puts forth a special effort to describe it worthily. Here we see how John Richard Green, the finest of England's later historical writers, grows eloquent and dramatic in describing the death of Oliver Cromwell, yet does not for a moment overstep the bounds of the historian, whose real business it is to make the dead past live again before our eyes by sheer force of truthful narrative, and not by forcing his own opinions upon us. Cromwell was a great man, and was great under the shadow of death; but it requires a great writer to show that to us in so convincing a style as Green does in this fine passage from his famous "Short History of England," published by Messrs. Macmillan & Co.

CONTINUED FROM PAGE 5750.

THE DEATH OF CROMWELL: By J. R. GREEN

NEVER had the fame of an English ruler stood higher; but in the midst of his glory the hand of death was falling on the Protector. He had long been weary of his task.

"God knows," he had burst out to the Parliament a year before, "I would have been glad to have lived under my woodside, and to have kept a flock of sheep, rather than to have undertaken this government."

And now to the weariness of power were added the weakness and feverish impatience of disease. Vigorous and energetic as his life seemed, his health was by no means as strong as his will; he had been struck down by intermittent fever in the midst of his triumphs both in Scotland and in Ireland, and during the past year he had suffered from repeated attacks of it.

"I have some infirmities upon me," he owned twice over in his speech at the reopening of the Parliament after an adjournment of six months; and his feverish irritability was quickened by the public danger. The reappearance of parliamentary strife threw him at last, says an observer at his court, "into a rage and passion like unto madness."

What gave weight to it was the growing strength of the Royalist party, and its preparations for a coming rising. Charles himself, with a large body of Spanish troops, drew to the coast of Flanders to take advantage of it. His hopes were above all encouraged by the strife in the Commons, and their manifest dislike of the system of the Protectorate. It was this that drove Cromwell to action. Summoning his coach by a sudden impulse, the Protector drove with a few guards to Westminster; and, setting aside the remonstrances of Fleetwood, summoned the two Houses to his presence. "I do dissolve this Parliament," he ended a speech of angry rebuke, "and let God be judge between you and me."

Fatal as was the error, for the moment all went well. The army was reconciled by the blow levelled at its opponents, and the few murmurers were weeded from its ranks by a careful remodelling. The triumphant officers vowed to stand or fall with his Highness. The danger of a Royalist rising vanished before a host of addresses from the counties. Great news, too, came from abroad, where victory in Flanders and the cession of Dunkirk set the seal on Cromwell's glory.

In the midst of his triumph Cromwell's heart was, in fact, heavy with the sense of failure. He had no desire to play the tyrant, nor had he any belief in the permanence of a mere tyranny. He clung desperately to the hope of bringing the country to his side. He had hardly dissolved the Parliament before he was planning the summons of

Cromwell dying in Whitehall during a great storm which tore the roofs from houses

another, and angry at the opposition which his Council offered to the project. "I will take my own resolutions," he said gloomily to his household; "I can no longer satisfy myself to sit still, and make myself guilty of the loss of all the honest party and of the nation itself."

But before his plans could be realised the overtaxed strength of the Protector suddenly gave way. He saw too clearly the chaos into which his death would plunge England to be willing to die.

"Do you think I shall die?" he burst out with feverish energy to the physicians who gathered round him. "Say not I have lost my reason. I tell you the truth. I know it from better authority than any you can have from Galen or Hippocrates. It is the answer of God Himself to our prayers."

Prayer indeed rose from every side for his recovery, but death drew steadily nearer, till even Cromwell felt that his hour had come. "I would be willing to live," the dying man murmured, "to be further serviceable to God and His people, but my work is done. Yet God will be with His people!"

A SAVAGE GOES A-HUNTING: By SIR G. GREY

The Australian native is one of the lowest types of human being, yet from this brilliant description of the Australian black on the track of a kangaroo we see that even to the repulsive savage a wild beauty and natural grace come when he is pitting his wits against the cunning of the wild creatures of the bush. This description is taken from a book entitled "Travels in Western and North-Western Australia," written by Sir George Grey, once the Governor-General of Australia, and who helped to build up that great commonwealth. We should have to read many modern books on savage life to find another description so vivid.

THE moment an Australian savage commences his day's hunting, his whole manner and appearance undergo a wondrous change. His eyes, before heavy and listless, brighten up, and are never for a moment fixed upon one object; his gait and movements, which were indolent and slow, become quick and restless, yet noiseless; he moves along with a rapid, stealthy pace, his glance roving from side to side in a vigilant, uneasy manner, arising from his eagerness to detect signs of game, and his fears of hidden foes. The earth, the water, the trees, the skies, each are in turn subjected to a rigid scrutiny.

His head is held erect, and his progress is uncertain. In a moment his pace is checked; he stands in precisely the position of motion as if suddenly transfixed. Nothing about him stirs but his eyes; they glance uneasily from side to side, whilst the head and every muscle seem immovable; but the white eyeballs may be seen in rapid

motion, whilst all his faculties are concentrated, and his whole soul is absorbed in the senses of sight and hearing. His wives, the moment they see him assume this attitude, fall to the ground as if they had been shot; their children cower by them, and their little faces express an anxiousness far beyond their years.

At length a suppressed whistle is given by one of the women, which denotes that she sees a kangaroo near her husband. All is again silence, and an unpractised European would ride within a few yards, and not perceive a living thing.

Looking about a hundred yards to the right of the native, you will see a kangaroo erect upon its hind legs, and supported by its tail. It is reared to its utmost height, so that its head is between five and six feet above the ground. Its short fore-paws hang by its side, its ears are pointed, it is listening as carefully as the native, and you see a little head appearing out from its pouch, to inquire what has alarmed its mother. But the native moves not; you cannot tell whether it is a human being or the charred trunk of a burnt tree which is before you, and for several minutes the whole group preserve their relative positions. At length the kangaroo becomes reassured, drops upon its forepaws, gives an awkward leap or two, and goes on feeding, the little inhabitant of its pouch stretching its head farther out, tasting the grass its mother is eating, and evidently debating whether or not it is safe to venture out of its resting-place. Meantime, the native moves not until the kangaroo, having two or three times resumed the attitude of listening, and having, like a monkey, scratched its side with its forepaw, at length once more abandons itself in perfect security to its feed, and playfully smells and rubs its little one. Now the watchful savage, keeping his body unmoved, fixes the spear first in the throwing-stick, and then raises his arms in the attitude of throwing, from which they are never again moved until the kangaroo dies or runs away. His spear being properly secured, he advances slowly and stealthily towards his prey, no part moving but his legs. Whenever the kangaroo looks round, he stands motionless, until the animal, assured of its safety, gives a skip or two, and goes on feeding.

Again the native advances, and this scene is repeated many times, until the whistling spear penetrates the devoted animal. Then the wood rings with shouts; women and children all join pell-mell in the chase. The kangaroo, weak from loss of blood, and embarrassed by the long spear which catches in the brushwood as it flies, at length turns on its pursuers, places its back against a tree, preparing at the same time to rend open its foremost pursuer, by seizing him in its forepaws, and kicking with its hind legs and claws. But the wily native keeps clear of so murderous an embrace, and throws spears into its breast, until the exhausted animal falls, and is soon despatched, when,

A KANGAROO, SUCH AS THE AUSTRALIAN NATIVES HUNT, IN CAPTIVITY

with the assistance of his wives, the native takes the forelegs over his left shoulder, and totters with his burden to some resting-place, where they enjoy their meal.

A CHEQUE FOR TEN POUNDS: By CHARLES DICKENS

It has been said that Charles Dickens was the "inventor of Christmas." It was certainly Dickens who made Christmas stories so popular. In one of his best books, "Nicholas Nickleby," there are two dear old men called the Cheeryble Brothers, who delight in good deeds. This little extract shows us what they were like. "Tim" is Tim Linkinwater, the clerk of the Cheerybles, and Mr. Trimmers is a friend.

"Is my brother in his room, Tim?" said Mr. Cheeryble.

"Yes, he is, sir," replied the clerk, turning his spectacle-glasses towards Nicholas. "But Mr. Trimmers is with him."

"Aye! And what has he come about, Tim?" said Mr. Cheeryble.

"He is getting up a subscription for the widow and family of a man who was killed in the East India Docks this morning, sir," rejoined Tim. "Smashed, sir, by a cask of sugar."

"He is a good creature," said Mr. Cheeryble, with great earnestness. "He is a kind soul. I am very much obliged to Trimmers."

Saying which, Mr. Cheeryble rubbed his hands with infinite delight, and, Mr. Trimmers happening to pass the door that instant on his way out, shot out after him and caught him by the hand.

"I owe you a thousand thanks, Trimmers — ten thousand thanks. I take it very friendly of you — very friendly indeed," said Mr. Cheeryble, dragging him into a corner to get out of hearing. "How many children are there, and what has my brother given?"

"There are six children," replied the gentleman, "and your brother has given us twenty pounds."

"My brother Ned is a good fellow, and you're a good fellow, too, Trimmers," said the old man, shaking him by both hands with trembling eagerness. "Put me down for another twenty — or — stop a minute, stop a minute. We mustn't look ostentatious; put me down ten pound, and Tim Linkinwater ten pound. A cheque for twenty pound for Mr. Trimmers, Tim. God bless you, Trimmers — and come and dine with us some day this week; you'll always find a knife and fork, and we shall be delighted."

THE HAND OF WALTER SCOTT: FROM AN OLD LETTER

No man can measure the pleasure that the hand of Walter Scott gave to the world. In the midst of life a terrible misfortune befell him; and Sir Walter, though not at all to blame, set himself the task of paying off an enormous debt, by his own earnings. This story is from a letter of a youth who dined opposite Scott's house.

I DINED one day with a party of very young persons, most of them, like myself, all gay and thoughtless, with little remembrance of the yesterday or care of the morrow.

When my companion's worthy father and uncle, after seeing two or three bottles go round, left the juveniles to themselves, we adjourned to a library which had one large window. After an hour or more, I observed that a shade had come over the aspect of my friend, and said something that intimated a fear of his being unwell.

"No," said he; "I shall be well enough presently, if you will only let me sit where you are, and take my chair, for there is a confounded hand in sight of me here, which has often bothered me before, and now it won't let me fill my glass with a good will."

I rose to change places with him; and he pointed out to me this hand, which, like the writing on Belshazzar's wall, disturbed his hour of hilarity.

"Since we sat down," he said, "I have been watching it, and it fascinates my eye. It never stops. Page after page is finished, and then thrown down on that heap of manuscript, and still it goes on unwearied."

"Some stupid, dogged, engrossing clerk, probably," exclaimed myself.

"No, boys," said our host. "I know whose hand it is; 'tis Walter Scott's."

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THE BURIAL OF MOSES

"And he buried him in a valley in the land of Moab, over against Beth-Peor; but no man knoweth of his sepulchre unto this day."—Deut. 34: 6.

Because Moses disobeyed God he was not allowed to enter the Promised Land, but on the borders of Canaan he climbed up Mt. Nebo, overlooking the fertile valleys and rolling plains of the country his people were soon to enter. There God showed him all the wonders of the land and there, alone with God upon the mountain top, he died.

By Nebo's lonely mountain,
On this side Jordan's wave,
In a vale in the land of Moab,
There lies a lonely grave.
And no man knows that sepulchre,
And no man saw it e'er,
For the angels of God upturned the sod,
And laid the dead man there.

That was the grandest funeral
That ever passed on earth;
But no man heard the trampling,
Or saw the train go forth:
Noiselessly as the daylight
Comes back when night is done,
And the crimson streak on ocean's cheek
Grows into the great sun,

Noiselessly as the spring-time
Her crown of verdure weaves,
And all the trees on all the hills,
Open their thousand leaves;
So without sound of music,
Or voice of them that wept,
Silently down from the mountain's crown,
The great procession swept.

Perchance the bald old eagle,
On gray Beth-Peor's height,
Out of his lonely eyrie,
Looked on the wondrous sight;
Perchance the lion stalking,
Still shuns that hallowed spot,
For beast and bird have seen and heard,
That which man knoweth not.

But when the warrior dieth,
His comrades in the war,
With arms reversed and muffled drum,
Follow his funeral car;
They show the banners taken,
They tell his battles won,
And after him lead his masterless steed,
While peals the minute-gun.

Amid the noblest of the land,
We lay the sage to rest,
And give the bard an honoured place
With costly marble drest,
In the great minster transept
Where lights like glories fall,
And the organ rings, and the sweet choir sings,
Along the emblazoned wall.

This was the truest warrior
That ever buckled sword,
This, the most gifted poet
That ever breathed a word;
And never earth's philosopher
Traced with his golden pen
On the deathless page, truths half so sage
As he wrote down for men.

And had he not high honour,—
The hillside for a pall,
To lie in state, while angels wait
With stars for tapers tall,
And the dark rock-pines like tossing plumes—
Over his bier to wave,
And God's own hand, in that lonely land,
To lay him in the grave?

In that strange grave without a name,
Whence his uncoffined clay
Shall break, again, O wondrous thought!
Before the judgment-day,
And stand with glory wrapt around
On hills he never trod,
And speak of the strife that won our life
With the Incarnate Son of God.

O lonely grave in Moab's land!
O dark Beth-Peor's hill!
Speak to these curious hearts of ours,
And teach them to be still.
God hath His mysteries of grace,
Ways that we cannot tell;
He hides them deep, like the sacred sleep
Of him He loved so well.

— Cecil F. Alexander.

THE HARP THAT ONCE THROUGH TARA'S HALLS

The harp that once through Tara's halls
The soul of music shed,
Now hangs on Tara's walls,
As if that soul were fled.
So sleeps the pride of former days,
So glory's thrill is o'er,
And hearts, that once beat high for praise,
Now feel that pulse no more.

No more to chiefs and ladies bright
The harp of Tara swells;
The chord alone, that breaks at night,
Its tale of ruin tells.
Thus Freedom now so seldom wakes,
The only throb she gives,
Is when some heart indignant breaks,
To show that still she lives.

—Thomas Moore.

THE BELLS OF SHANDON

Francis Sylvester Mahony, who wrote "The Bells of Shandon," was born in Cork, Ireland, in 1805. He became a priest, then gave up his calling to take his place on the staff of a magazine. He was a brilliant, witty and sarcastic writer, and his works are collected in a volume entitled "Reliques of Father Prout." When he became older he retired into a monastery.

With deep affection and recollection
I often think of those Shandon bells,
Whose songs so wild would, in the days of childhood,
Fling round my cradle their magic spells.
On this I ponder where'er I wander,
And thus grow fonder, sweet Cork, of thee;
With thy bells of Shandon,
That sound so grand on
The pleasant waters of the river Lee.

I've heard bells chiming full many a clime in,
Tolling sublime in cathedral shrine,
While at a glib rate brass tongues would vibrate—
But all their music spoke nought like thine;
For memory dwelling on each proud swelling
Of the belfry knelling its bold notes free
Made the bells of Shandon
Sound far more grand on
The pleasant waters of the river Lee.

I've heard bells tolling old "Adrian's Mole" in,
Their thunder rolling from the Vatican,
And cymbals glorious swinging uproarious
In the gorgeous turrets of Notre Dame;
But thy sounds were sweeter than the dome of Peter
Flings o'er the Tiber, pealing solemnly;—
Oh! the bells of Shandon
Sound far more grand on
The pleasant waters of the river Lee.

There's a bell in Moscow, while on tower and kiosk O!
In Saint Sophia the Turkman gets,
And loud in air calls men to prayer
From the tapering summits of tall minarets.
Such empty phantom I freely grant them;
But there is an anthem more dear to me,—
'Tis the bells of Shandon,
That sound so grand on
The pleasant waters of the river Lee.

SLEEP, BABY, SLEEP

Sleep, baby, sleep!
Thy father watches his sheep;
Thy mother is shaking the dreamland tree,
And down comes a little dream on thee.
Sleep, baby, sleep!

Sleep, baby, sleep!
The large stars are the sheep;
The little stars are the lamps, I guess;
And the gentle moon is the shepherdess.
Sleep, baby, sleep!

Sleep, baby, sleep!
Our Saviour loves His sheep;
He is the Lamb of God on high,
Who for our sakes came down to die.
Sleep, baby, sleep!

—*From the German.*

WHEN I AWAKE I AM STILL WITH THEE

Still, still with Thee, when purple morning breaketh,
When the bird waketh and the shadows flee;
Fairer than morning, lovelier than the daylight,
Dawns the sweet consciousness,—I am with Thee!

Alone with Thee, amid the mystic shadows,
The solemn hush of nature newly born;
Alone with Thee in breathless adoration,
In the calm dew and freshness of the morn!

When sinks the soul, subdued by toil, to slumber,
Its closing eye looks up to Thee in prayer;
Sweet the repose beneath Thy wings o'ershading,
But sweeter still, to wake and find Thee there.

So shall it be at last, in that bright morning
When the soul waketh, and life's shadows flee;
Oh, in that hour, fairer than daylight dawning,
Shall rise the glorious thought,—I am with Thee!

—Harriet Beecher Stowe.

MAIDENHOOD

MAIDEN! with the meek, brown eyes,
In whose orbs a shadow lies
Like the dusk in evening skies!

Thou whose locks outshine the sun,
Golden tresses, wreathed in one,
As the braided streamlets run!

Standing, with reluctant feet,
Where the brook and river meet,
Womanhood and childhood fleet!

Gazing, with a timid glance,
On the brooklet's swift advance,
On the river's broad expanse!

Deep and still, that gliding stream
Beautiful to thee must seem,
As the river of a dream.

Then why pause with indecision,
When bright angels in thy vision
Beckon thee to fields Elysian?

Seest thou shadows sailing by,
As the dove, with startled eye,
Sees the falcon's shadow fly?

Hearest thou voices on the shore,
That our ears perceive no more,
Deafened by the cataract's roar?

O, thou child of many prayers!
Life hath quicksands, — Life hath snares
Care and age come unawares!

Like the swell of some sweet tune,
Morning rises into noon,
May glides onward into June.

Childhood is the bough where slumbered
Birds and blossoms many-numbered; —
Age, that bough with snows encumbered.

Gather, then, each flower that grows,
When the young heart overflows,
To embalm that tent of snows.

Bear a lily in thy hand;
Gates of brass cannot withstand
One touch of that magic wand.

Bear through sorrow, wrong, and ruth,
In thy heart the dew of youth,
On thy lips the smile of truth.

O, that dew, like balm, shall steal
Into wounds that cannot heal,
Even as sleep our eyes doth seal;

And that smile, like sunshine, dart
Into many a sunless heart,
For a smile of God thou art.

— HENRY WADSWORTH LONGFELLOW.

NIGHT

SWIFTLY walk over the Western wave,
Spirit of Night!
Out of the misty Eastern cave,
Where, all the long and lone daylight,
Thou wovest dreams of joy and fear,
Which make thee terrible and dear;

Swift be thy flight!
Wrap thy form in a mantle gray,
Star inwrought!
Blind with thine hair the eyes of Day!
Kiss him until he be wearied out;
Then wander o'er city and sea and land,
Touching all with thine opiate wand!
Come, long sought!

When I arose and saw the dawn,
I sighed for thee;
When light rode high, and dew was gone,
And noon lay heavy on flower and tree;
And the weary Day turned to his rest,
Lingering like an unloved guest
I sighed for thee.

Thy brother Death came, and cried,
"Would'st thou me?"
Thy sweet child, Sleep, the filmy-eyed,
Murmur'd like a noon-tide bee —
"Shall I nestle by thy side?
Wouldst thou me?" And I replied —
No! not thee.

Death will come when thou art dead,
Soon, too soon!
Sleep will come when thou art fled;
Of neither would I ask the boon
I ask of thee, beloved Night!
Swift be thine approaching flight!
Come soon, soon!

— PERCY BYSSHE SHELLEY.

THE autumn is a gipsy, when the frost is in the air;
A joyous, tattered wanderer, with sumac in her hair. — H. ANUNDSEN.

THE ROSE

This pretty little poem was written by Edmund Waller, a poet and courtier of the seventeenth century and a great favourite in the Court of King Charles the Second.

GO, lovely rose!
Tell her that wastes her time and me,
That now she knows,
When I resemble her to thee,
How sweet and fair she seems to be.

Tell her that's young
And shuns to have her graces spied,
That hadst thou sprung
In deserts, where no men abide,
Thou must have uncommended died.

Small is the worth
Of beauty from the light retired;
Bid her come forth,
Suffer herself to be desired,
And not blush so to be admired.

Then die! that she
The common fate of all things rare
May read in thee:
How small a part of time they share
That are so wondrous sweet and fair!

A CRADLE SONG

Hush! my dear, lie still and slumber;
Holy angels guard thy bed!
Heavenly blessings without number
Gently falling on thy head.

Sleep, my babe; thy food and raiment,
House and home, thy friends provide,
All without thy care or payment,
All thy wants are well supplied.

How much better thou art attended
Than the Son of God could be,
When from Heaven he descended,
And became a child like thee!

Soft and easy is thy cradle:
Coarse and hard thy Saviour lay,
When his birthplace was a stable,
And his softest bed was hay.

See the kindly shepherds round him,
Telling wonders from the sky!
Where they sought him, there they found him,
With his Virgin-mother by.

See the lovely babe a-dressing!
Lovely infant, how he smiled!
When he wept, the mother's blessing
Soothed and hushed the holy child.

Lo, he slumbers in his manger,
Where the hornèd oxen fed;
Peace, my darling! here's no danger,
Here's no ox a-near thy bed!

May'st thou live to know and fear him,
Trust and love him all thy days:
Then go dwell for ever near him;
See his face, and sing his praise.

I could give thee thousand kisses,
Hoping what I most desire:
Not a mother's fondest wishes
Can to greater joys aspire.

— Isaac Watts.

MY KATE

She was not as pretty as women I know;
And yet all your best, made of sunshine and snow,
Drop to shade, melt to nought, in the long trodden ways,
While she's still remembered on warm and cold days —
My Kate.

Her air had a meaning, her movements a grace;
You turned from the fairest to gaze on her face:
And, when you had once seen her forehead and mouth,
You saw as distinctly her soul and her truth —
My Kate.

Such a blue inner light from her eyelids outbroke,
You looked at her silence, and fancied she spoke:
When she did, so peculiar yet soft was the tone,
Though the loudest spoke also you heard her alone —
My Kate.

I doubt if she said to you much that could act
As a thought or suggestion: she did not attract
In the sense of the brilliant or wise; I infer
'Twas her thinking of others made you think of her —
My Kate.

She never found fault with you, never implied
Your wrong by her right; and yet men at her side
Grew nobler, girls purer, as through the whole town
The children were gladder that pulled at her gown —
My Kate.

None knelt at her feet confessed lovers in thrall:
They knelt more to God than they used — that was all.
If you praised her as charming, some asked what you meant;
But the charm of her presence was felt when she went —
My Kate.

The weak and the gentle, the ribald and rude,
She took as she found them, and did them all good;
It always was so with her — see what you have!
She has made the grass greener over her with her grave —
My Kate.

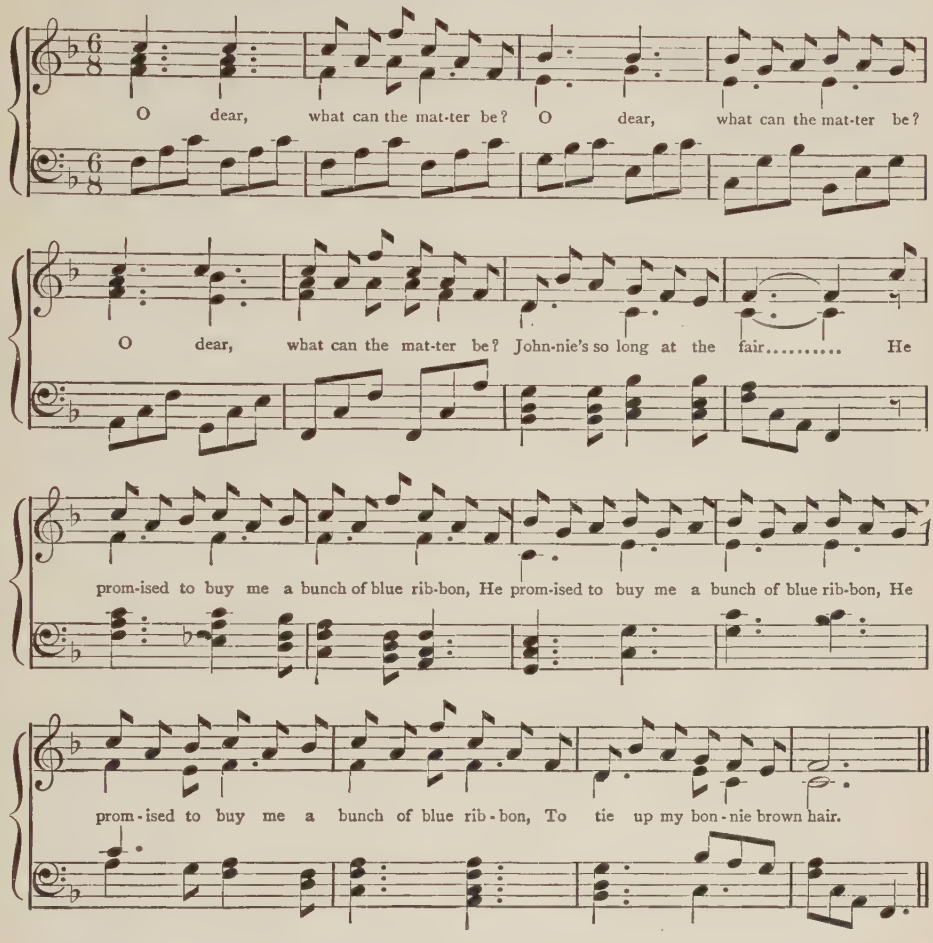
My dear one! when thou wast alive with the rest,
I held thee the sweetest, and loved thee the best;
And now thou art dead, shall I not take thy part,
As thy smiles used to do for thyself, my sweet heart —
My Kate.

— Elizabeth Barrett Browning.

LOVE IN TEARS

Love, won or lost, is countless gain;
. . . . . .
And let us own, the sharpest smart
Which human patience may endure
Pays light for that which leaves the heart
More generous, dignified, and pure.

— Coventry Patmore.

O DEAR, WHAT CAN THE MATTER BE?

O dear, what can the mat-ter be? O dear, what can the mat-ter be?
O dear, what can the mat-ter be? John-nie's so long at the fair..... He
prom-ised to buy me a bunch of blue rib-bon, He prom-ised to buy me a bunch of blue rib-bon, He
prom-ised to buy me a bunch of blue rib-bon, To tie up my bon-nie brown hair.

O dear, what can the matter be ?
O dear, what can the matter be ?
O dear, what can the matter be ?
Johnnie's so long at the fair.

He promised to buy me a bunch of blue ribbon,
He promised to buy me a bunch of blue ribbon,
He promised to buy me a bunch of blue ribbon,
To tie up my bonnie brown hair.

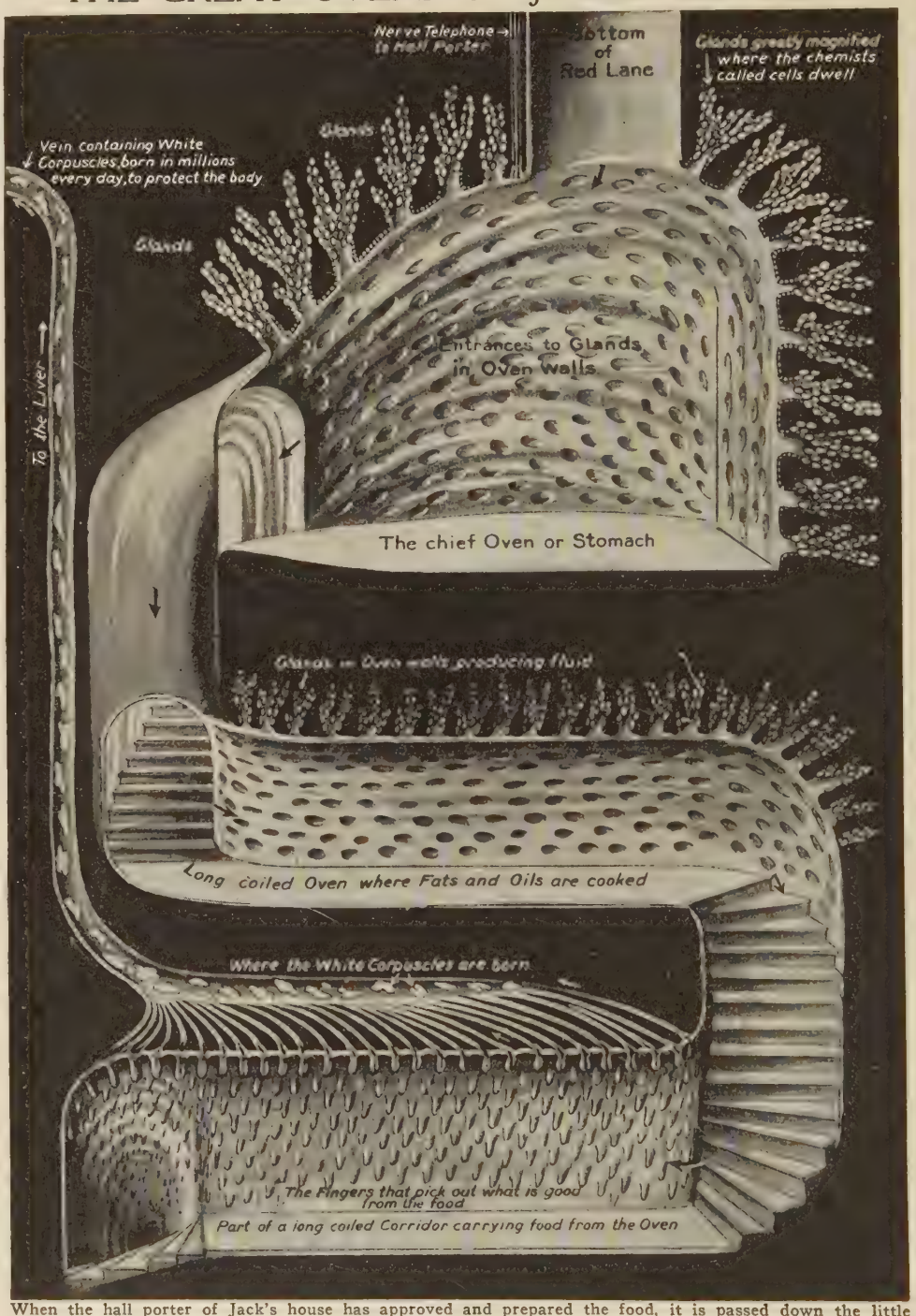
O dear, what can the matter be ?
O dear, what can the matter be ?
O dear, what can the matter be ?
Johnnie's so long at the fair.

He promised to bring me a basket of posies,
A garland of lilies, a garland of roses,
A little straw hat, to set off the blue ribbons
That tie up my bonnie brown hair.

If bees stay at home,
Rain will soon come.

If they fly away,
Fine will be the day.

THE GREAT OVENS OF JACK'S KITCHEN


Nerve Telephone → to Hall Porter
Bottom of Red Lane
Glands greatly magnified where the chemists called cells dwell
Vein containing White Corpuscles born in millions every day, to protect the body
Glands
Glands
To the Liver
Entrances to Glands in Oven Walls
The chief Oven or Stomach
Glands in Oven walls producing fluid
Long coiled Oven where Fats and Oils are cooked
Where the White Corpuscles are born
The Fingers that pick out what is good from the food
Part of a long coiled Corridor carrying food from the Oven

When the hall porter of Jack's house has approved and prepared the food, it is passed down the little red lane to the ovens. The first oven, the stomach, is lined with glands, in which dwell millions of chemists, or cells, who pour out liquids to help the cooking or digesting of food — for all food must be cooked here before it is passed on to the long-coiled oven known as the upper part of the bowel. Here cooking of the oils and fats prepares the food for the long-coiled corridors of the bowels, where millions of tiny "fingers" reach out from the walls, each containing a loop of a blood-vessel, and covered with cells. In these cells live the chemists who pick out what is most precious in the food and pass it into the blood, where this precious substance is changed into white corpuscles, which protect the body from harm.

Jack's hall porter, who examines the fuel after it is admitted, and prepares it, with the aid of the choppers and crushers, for the ovens at the end of the red lane, in which the food is cooked

CONTINUED FROM PAGE 5764.

THE GREAT CORRIDOR

DOWN THE RED LANE TO THE KITCHEN

We know that as Jack's house is always burning and has several large furnaces always going day and night, he requires a supply of fuel to make good the loss; and we know also that every inch of room in his house is precious, and he can store up only very little fuel, as a rule, so that a fresh supply is wanted very often — three or four times a day, indeed. And we know that Jack's house is raised on stilts, or legs, and provided with arms, so that it can walk about and help itself.

Though Jack's house is so magnificent, it has only a front door for the admission of anything. There is, of course, the great ventilating shaft, but that does not count for the use of fuel. It is true that, in desperate circumstances, such fuel as oil can be rubbed through the outer wall into Jack's house, but the rule is that all Jack's fuel is received by the front door, and examined by the hall porter.

The responsibility of deciding what shall be admitted to Jack's house is, of course, enormous. There are hosts of things in the world of which one drop or one grain would be quite sufficient to destroy Jack's house beyond repair. As a rule, the hall porter, and the front doors themselves, which are covered with tiny sentinels called nerve ends, are very clever in recognising such dangerous things, not to mention pieces of stone, or splinters, and so on, which would be apt to jam in Jack's great central corridor; and they have a short and effective way with anything they don't like, for the walls of Jack's hall come together, a sharp blast of air rushes through it, the hall porter lends a hand, the doors open smoothly outwards — and Jack spits out the nasty stuff.

There is no doubt that Jack throws a great deal of work upon his hall porter, and that occasionally that invaluable servant shows signs of overwork by appearing pale, but, as a rule, he is spruce and ruddy, and the better he does his master's work the more he himself thrives. For, of course, he has his temptations, and too often he yields to them, and admits into Jack's house what has no business there.

His rule is to test each piece of proposed fuel by means of what we

call taste, and if he likes the taste of anything after he has it, he gives it a coating of smooth material which helps it onwards. Generally speaking, the rule is that the things the hall porter likes to taste are good for Jack, and the things he dislikes to taste, and will not admit, are bad for Jack.

THE HALL PORTER'S ASSISTANTS

The fuel the hall porter admits is seldom quite fit for use, and so the hall is really a department of Jack's kitchen. The ordinary name for the fuel is food, and all food requires cooking. Some people will think that a mistake, for we eat uncooked food. But all food, cooked or uncooked, requires further cooking in Jack's kitchen; and this business of cooking is, in some ways, the great concern of Jack's house, just as it is in most houses.

In the hall, for instance, there stand no fewer than twenty assistant cooks when Jack is very young, and as many as thirty-two when he is grown up, entirely devoting themselves to chopping up Jack's vegetables, and so on, cutting, crushing, and mixing, before the food is sent along the celebrated "red lane" to Jack's kitchen, which is really the huge living oven where it is cooked. These assistants in the hall are very valuable, and if they fall ill and have to go, Jack cannot get any others that are nearly so good.

THE CARE OF THE HALL

The best way to take care of these precious helpers is to give them enough work of the right kind to do; if that is done from the first they will very seldom go wrong in any way. That is also the best way to take care of all servants and masters.

And here it may be freely admitted, in the friendliest way, that if Jack has a fault, it is that he is a trifle careless about his hall. The hall porter does his best, and is quite fussy about litter of any kind, about the smallest trifle of fuel or rubbish that may have got stuck among the chopper; but since Jack changed his habits and began to use prepared and partly cooked fuel, instead of the raw stuff of long ago, it cannot be denied that his hall is seldom as clean as the hall of such a mansion should be. We must remember that this hall is an oven, too, and that the food is partly cooked inside it by the saliva produced in laboratories called the salivary glands.

Now, we cannot have chopping and cooking done in a place without mess and litter and a certain amount of soiling; and the hall porter is not equal to doing any very hard scrubbing. Nowadays that must be done for him, if the hall is to be kept nice, and if the litter and mess in it are not to get further into Jack's house and clog the wheels generally. Jack must brush his teeth, in a word; and, above all, he must do so, and have his hall in perfect sweetness and tidiness, before he locks up for the night.

THE ROOM WITH THE RED WALLS

Let us make ourselves very small and follow the prepared fuel down Jack's "red lane" — with Jack's first floor all round us, if we could see it — and down into his stomach, on the kitchen-floor. This is a most extraordinary room, with light red walls, and no breathing space at all. It is practically a living oven, which grows large or small according to its contents, but always so as to bring the walls close together, an oven lined with chemists, who pour from its walls a variety of wonderful liquids which cook the contents; and as they do so the walls of the oven are always moving backwards and forwards, turning everything over, letting nothing get burnt or too brown.

But there are three things clearly to be remembered. If the chopping, and the moistening, and the preliminary cooking have not been properly done in the hall, and if, on the contrary, Jack has simply "bolted his food," he would have done much better to have bolted his door. Sometimes the oven will simply send everything back, and, as a general rule, this, unpleasant though it be, is much the best thing it can do in the circumstances. Short of that, the oven will get out of order, and look, if we could see inside it, rather like the hall porter when he has

been enjoying himself instead of attending strictly to his master's business.

The second point is that this oven is not made for cooking any kind of fat or oil, though it will always try. It will mix the oil — all fats melt and become oils in Jack's house, owing to the cosy warmth he keeps it at — and roll it backwards and forwards, and the chemists in the walls will pour all sorts of things upon it, but no oil is cooked in Jack's chief oven.

THE WONDERFUL OVEN

The third point is that, just as this oven is not a mill, and cannot do the work of the mill in Jack's hall, so also it is not a sieve or a filter. Its business is cooking, and nothing else. The things put into it may be sent back, if they are highly unsuitable, or sent forwards when they are ready; but we are wrong to suppose that they soak through the walls of the oven. Practically no food ever enters the blood in this fashion. For this wonderful oven is not capable of cooking the food to such an extent that it is fit to enter the blood.

Many other things have to be done to it before it is ready for that. The stomach carries out the second stage in the cooking, the first having been begun in the mouth while the crushers of the mill were at work, and third and later stages are carried out in the bowel, the long, coiled corridor which leads onward from the chief oven, or stomach.

The stomach can be dispensed with, but it has very great uses. It is the biggest of Jack's ovens, and is very convenient by reason of its great size, for it enables him to take in fairly large supplies of fuel at a time, and then to do something else between whiles. It provides a convenient oven in which the starches in the food are partly cooked, or fermented, by the saliva with which the food was mixed in the mouth. After the food has been in the stomach from about twenty minutes to half an hour, this process stops, and the wonderful walls of this most wonderful oven, which have all the time been stirring the food, pour forth a fluid, usually called the "gastric juice," which sets to work to cook, or ferment, the most important foods of all, which are called the proteins.

THE CHEMISTS IN THE WALLS

Different portions of the gastric juice come from different parts of the stomach. This oven is simply lined, from end to end, with tiny glands, or laboratories, where the chemists, called cells, manufacture what is required to cook the food. A certain set of these laboratories are notable because they produce an acid, called hydrochloric acid, which is very well known.

This acid is produced from the common salt which is always found in the blood, because it is a necessity for Jack's life; and the remarkable thing is that if a chemist, other than one of the living cells in Jack's stomach, desires to get hydrochloric acid from common salt, he has to split up this very firm compound by powerful means; but the tiny chemists that live in Jack's oven can do it without effort; and no living man can tell us how.

THE ENEMIES WHO TRY TO GET IN

The other interesting fact about this acid is that, quite apart from its use in cooking, or digesting, Jack's food, it is a great enemy of housebreakers and thieves, for it is what is called an antiseptic, killing microbes, or germs. These are tiny living things, Jack's chief enemies, which are constantly trying to enter his house, stealing from it and often poisoning it, or breaking down the partitions between one room and another. One of their easiest and commonest ways of entry is in the food; they are far too small for the hall porter to notice, and they soon reach the oven. There they thrive until the hydrochloric acid is poured forth, and then they are overpowered by millions, and their dead bodies are digested and burnt up, and so made useful. It is probable that Jack's house could hardly protect itself at all from the constant attacks of these housebreakers were it not for the hydrochloric acid which they meet so soon, and which can usually be trusted

to kill nearly all of them, except when the oven is out of order, and the chemists in its walls are not working properly. Unfortunately, however, certain microbes have learnt how to coat themselves with a very dense and firm layer of something which the hydrochloric acid of the stomach cannot get through.

Telephoning anywhere at any time

If this oven is to work well, moving its walls strongly and firmly, producing suitable fluid for protective and cooking purposes, and not passing its contents on until it has done all it should to them, it must be perfectly emptied at regular intervals. In no other way can it have its walls thoroughly cleansed and kept in good working order; and surely nothing more reasonable could be expected. Thus, if Jack overloads it, and takes in a fresh supply of food before the last is sufficiently cooked and passed on, or if he is always putting candy into it between meals, his oven will never get a chance to have its walls thoroughly scraped down, and the chemists who live in them will grow weary, and everything will go wrong.

The oven and the chemists are all on the telephone, so to speak, from the hall porter; and no sooner does he admit anything he approves of than he sends a message to the stomach, which at once begins to prepare a fresh supply of gastric juice. The stomach "waters" by telephonic order, so to say, just as the mouth waters by telephonic orders from the eyes or the nose when we see or smell something delicious. But indeed there is *no part* of Jack's house which cannot telephone to *any other part* of it at any time.

The living walls of the oven

The oven into which the food passes next is a longer, narrower oven, known as the upper part of the bowel. Its walls, also, are lined with glands producing a cooking-juice of their own; much more powerful is the special mixture of juices sent here from the great laboratory called the pancreas, and also from the liver.

If we study the inside of this oven, the bowel, as we pass along it, we find that it gradually ceases to be an oven, and becomes more like a filter. Tiny little projections, like the fingers of a glove, line its walls in millions; and each of these contains a loop of a blood-vessel.

Each projection is covered with living cells, which are chemists of a very different kind from those we have hitherto noticed in Jack's house. They make nothing; their business is to choose. As the contents of this oven, now at last fully cooked, flow past them, they pick out all the various substances which are good, and, as far as possible, reject the rest. And then they pass them into the little loop of blood-vessel in the finger-like projection, and so they pass off to the liver for further treatment.

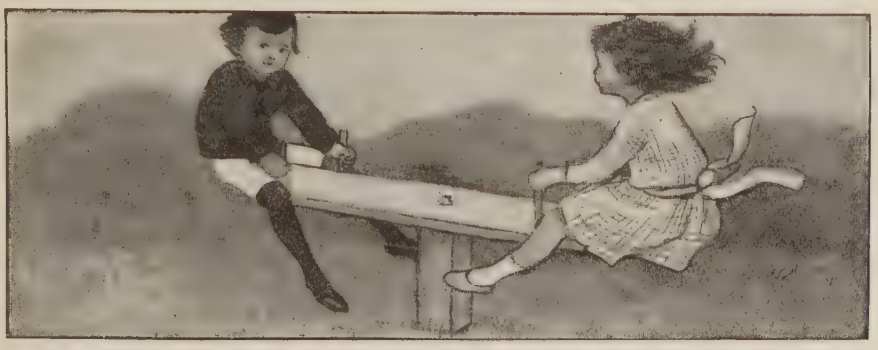
All this time we are really travelling along a central tube, or corridor, which began at Jack's front door and hall, and continued with his red lane and gullet — a very narrow stretch this — then expanded into its widest place, the stomach, and then narrowed again into the part we have been describing. If we travel many feet further along we come to some new features.

Jack's protectors

If Jack's house were a city, we should have to call these the barracks and military schools and police-stations. We find them in the wall of the bowel, and they are crowded with young and growing-up cells, which are soon going to be passed into the blood, where they will be the white blood-cells, Jack's protectors, ready to kill any microbes that have escaped the hydrochloric acid in the stomach or have entered by the ventilating shaft. Millions of these are poured afresh into the blood after every meal.

Such are some of the wonders of what is perhaps the humblest and the least beautiful part of Jack's house. It is manned by countless millions of living cells, living and dying, never seeing the daylight nor having a moment for their own pleasure.

CONTINUED ON PAGE 6015.



A GARDEN MERRY-GO-ROUND

CONTINUED FROM PAGE 5900.

All boys and girls love to ride on a merry-go-round, and perhaps some will be surprised to hear that a very good merry-go-round can be made and fixed up in the garden by any boy who is handy with tools; and what boy is not?

We first of all get a stout post about seven or eight feet long and six or seven inches in diameter, or, if it is square, with sides of six or seven inches. Such a post can be bought quite cheaply at any lumber-yard, or a carpenter will get it for us.

We sink this wooden post about four feet in the ground, pressing in the earth well all round. The top of the post must be made quite smooth and level, and on it we balance a long, stout plank. This should be eighteen or twenty feet long and about two inches thick.

In the middle of the plank we bore a round hole, sufficiently large for a bolt to go through. It is this bolt that will hold the plank down upon the upright post, while at the same time allowing the plank to work easily upon it. Of course, while the hole has to be slightly wider in diameter than the diameter of the bolt, it must not be so large that the plank will be able to slip over the head of the bolt.

The plank is placed in position on the post, and a hole having been made in the post to receive the bolt, this is screwed or driven home, so that only sufficient is left above the plank to allow this to work round easily on the post. The bolt should be a long one, some twelve or fifteen inches in length, or it will work out of the post.

At right angles to the plank, and about three feet from the ends, pieces of wood should be fastened, as in the picture, to serve as handles, by which those riding upon the merry-go-round can support themselves. All that is needed now to make the merry-go-round quite ready for use is some soap for the top of the pole, to go between it and the plank, and enable the plank to slide round easily.

The method of using this home-made merry-go-round is obvious. Two boys or girls take their places—one at each end of the plank—and then, by using their feet as levers, send the plank round and round faster and faster; it is, of course, necessary to hold on firmly. There is more fun to be had out of a merry-go-round made in this way than even out of a see-saw.

If the merry-go-round is intended for big boys and girls, the upright upon which the plank is to work should be larger than that suggested at the beginning of this article. It should be twelve inches in diameter, and in fixing it in the ground it would be well to make some liquid cement and pour this round the post, leaving it to set. In this way the post would be held firmly in the ground, and not be likely to work loose.

Where there are many children who usually play together, the fun can be more than doubled, by making another plank cross this one at right angles. The two must be firmly bolted together — it is not wise to use nails as they are likely to pull out — by at least four bolts through both planks. By adopting this plan, four can ride at once, and as the merry-go-round flies around we seem to see only a tangle of arms and legs and hair, and the shrieks we hear show how much fun all are having.

Of course, this post and one plank can be used for a see-saw, as well as for the merry-go-round. When used for this purpose, however, the hole in the plank must be a little large, so that the bolt will have plenty of room, or else our see-saw will not allow the plank to go down far enough. Also the sharp edges of the post should be rounded off, or else the see-saw will bump as it goes up and down.

HOW MANY PEOPLE CAN YOU FIND IN THIS PICTURE?

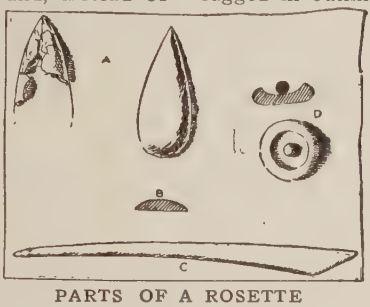
In this picture of a village common there are a number of people shown; in addition to those whom we can see clearly, there are others indicated by something they are holding, by part of their body, or some other way. Look at the picture and see how many people you can discover. There are fifty-six, if you find them all.

THREE THINGS FOR CLAY MODELLING

THE familiar things appearing on this page are intended for clay modelling. They can be easily made from the instructions given here. They are intended to be carried out to a fairly large scale, and, instead of forming them out of spheres or cylinders, we shall build them up bit by bit to the required size on our slate.

Let us take the first exercise—a simple rosette with four petals.

As we are making this a good size—say, eight inches across—we must not try to model the petals in the fingers and then lay them in position, for the work must look as though it were united to its background. It is to be definitely *semi-relief*, and this will not be the case if it is detached in the working. Secondly, it must look plastic—that is, it must have a modelled appearance rather than that of having been "stuck on." Nor must we put a rough piece down and carve out the shape; it would scarcely be "modelling" under such conditions, and the result would be more suggestive of carving tools than of the pliable fingers.



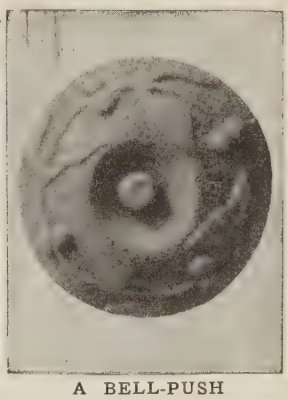
PARTS OF A ROSETTE

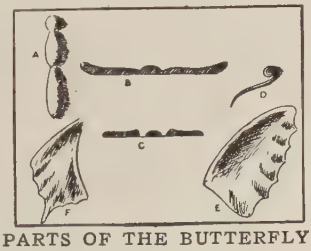
To begin, mark with dots of chalk the positions of the extreme points of the rosette and lightly draw the shape of each petal, making the length about three and a quarter inches. We now break off little pieces from our lump of plasticine, and proceed to build up the topmost petal as at A in the first picture, preserving the outline as we press each piece into position. We shall find it a distinct help to use together the tips of both forefingers during this shaping process. On no account must the work look smeary and ragged in outline, and without great care it will very quickly become so.

"Take care of the edges" is an important rule for all stages of modelling, especially during the earlier stages of low-relief work. If there should be any tendency to smeariness, the edges may be cleaned up by the aid of a little wooden tool like the shape shown at C. This can either be bought for a few cents or it can be made with an ordinary penknife and then rubbed over with fine sandpaper in order to make it smooth. Its use is chiefly to clean up the edges of the work when they become ragged or smeared, and to model up those parts which are inaccessible to the fingers. Build up each piece to the section B, which suggests the proportionate depth, or thickness, and make the surface smooth.

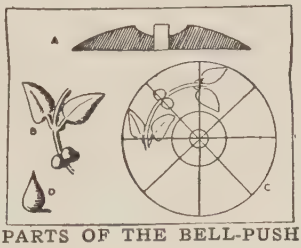
A ROSETTE

A BUTTERFLY


A BELL-PUSH



PARTS OF THE BUTTERFLY



PARTS OF THE BELL-PUSH

It is well to revolve the slate while we model each petal, for we should have the point away from us during the process.

Having completed the four petals, we may make the centre by rolling a ball and pressing it so as to make the hollowed disc, D. It should be sufficiently large to fill the central space. Another small ball is then rolled and placed in the centre of the depression.

The second picture shows a butterfly, which, though differing largely from the rosette, is built up in a very similar way. The head and body, A, should be modelled first to a convenient size, and we ought to have no difficulty with this, as we adopt the same method as we used in making the petals of the rosette. The upper pair of wings must next be done, and, having lightly sketched them in to a proportionate size, we build up the clay to the section shown at B. This section is taken right across the middle of the upper pair of wings. We must notice that *all* the wings are joined to the *upper* portion of the body, while the lower part is free of all attachment. We now proceed with the second and smaller pair of wings, a section of which is given at C.

The antennæ are made from very thinly rolled strips, one end of each being curled up into a tiny ball as at D.

It is true that neither the antennæ nor probably the butterfly itself would be quite this shape, but we must remember that we are decorators—for modelling is largely a decorative art—and decorators, like poets, take a certain license in the treatment of their subjects. Our picture shows only a much simplified form of butterfly. There are, of course, many types. At E and F are shown sketches of one upper and one lower wing of a different variety, and we shall find it an excellent exercise to make a study of a real specimen.

The third model is an electric bell-push. On our slate we mark a circle of about four inches diameter, and in the manner already described we build up a disc of the section shown at A. This should be made smooth and free from all depressions, excepting, of course, the one at the top, in which the push is placed. The actual hole through which the push passes can be ignored at this stage.

The disc finished, we have the problem of fixing on our ornamentation. This is quite a delicate process. First, let us look at the sketch of the ornament at B. It consists of simple leaves and berries on a continuous stalk. Now upon our disc we mark lightly with a fine point the position of this stalk, and also the positions of the leaves and berries. We shall see that there are four pairs of leaves and four pairs of berries placed at equal distances from each other. We obtain the positions by dividing the disc up into eight parts, as shown at C in the last illustration. The stalk is a thinly rolled-out strip, placed and gently pressed into position. The berries are tiny balls rolled in the fingers and then pressed into their places.

For the leaves, small pieces must be rolled into the pointed pear-shape shown at D. Each piece is then put in place, pressed, and carefully worked with the finger-tip and tool till it appears to be just a raised portion of the disc. Tiny strips are added for the leaf-stalks. These must be carefully attached to both leaf and main stem. In all fine work such as is required in this exercise the little tools we have introduced will often need to be used, for, however small our fingers are, there are some parts of our modelling to which they will be inaccessible.

To give the roughened appearance of the background it is only necessary to stamp it lightly with the end of a match or similar tool. The centre push is a short cylinder a little thicker than a lead pencil. A hole is bored through the centre of the disc to receive it.

MEASURING A TOWER WITH A LOOKING-GLASS

THERE are various ways of measuring the height of a tower or tree or house, but one of the simplest is by means of a looking-glass. We take the looking-glass some distance from the tower or other object which we wish to measure, and lay it on the ground, with the reflecting side upmost, as in the picture, where A B is the tower and C the looking-glass.

THE LOOKING-GLASS PLACED IN POSITION

We then walk backwards farther from the tower, until we can see the top of it reflected in the glass. Next we have to measure the height of our eye, D, from the ground, E, the length of E C and of C B.

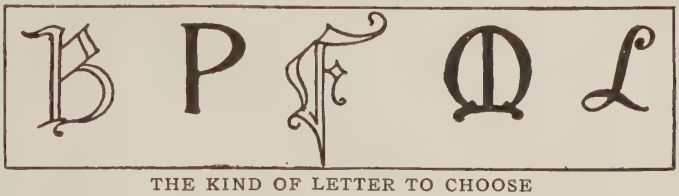
Now, in order to get the height of the tower, we simply have to work a sum in proportion.

As C E is to E D so is C B to B A. We know three of these measures, so that we can easily find the fourth. Thus, if the boy's eye is five feet from the ground, and he is standing six feet from the mirror when he sees in it the reflection of the point A, and, further, if the distance from the foot of the tower to the mirror is twenty-four feet, then the height of the tower is twenty feet. It is essential that the mirror be placed on the ground quite horizontally. If we have no looking-glass, we can make a mirror by putting some water in a dark pan or tray, or even a natural pool can be used. In such cases we can move until we see the reflection of the top of the tree or tower at the edge of the pool. Of course, a pool or tray of water can only be used for the mirror if there is no wind.

PUTTING A NAME ON A HANDKERCHIEF

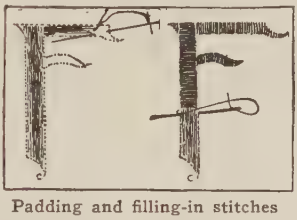
We all know how dainty and charming an embroidered initial makes a handkerchief, but we may not know how simply and quickly this little addition may be made. And yet a little patience, and a knowledge of two of the simplest embroidery stitches, are all that are needed to obtain the most delightful results.

Let us suppose we have never done such work before, and see how to set about it. To begin with, we must remember to choose a linen handkerchief which is not too fine. Linen is firm to work on, and is not so apt to pull and pucker as a thinner material, like cambric. The next thing to consider is the initial itself. We cannot all draw well enough to sketch one ourselves, and it is not easy to find something suitable to copy from. A good place to search is on the title-page of a well-bound book. The letters on a title-page are designed by good artists, and are, as a rule, well proportioned and very clear. Old hymn and Psalm books are places in which to find really good letters.



THE KIND OF LETTER TO CHOOSE

There is a great difference in letters, and we shall, perhaps, have to search through several volumes before we hit upon exactly what we want. We must choose one that not only pleases us and has a pretty shape, but at the same time is not too much curved or over-elaborated. The first picture gives us an idea of five sorts of letters to choose. Any of these work out well. The letter should be of a fair size, for the smaller it is the more difficult it will be to work. One which measures from one-half of an inch to three-quarters is the best to start with.



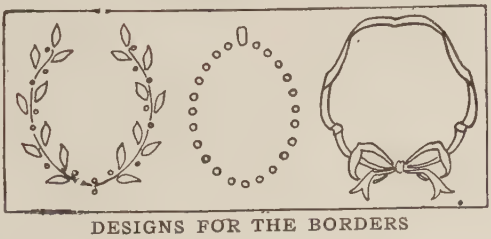
Padding and filling-in stitches

When we have chosen our letter from the book, we transfer it to the handkerchief in this way. We get a scrap of tracing-paper, trace off the letter, and then blacken the back of the tracing-paper with a soft lead pencil.

We lay the linen handkerchief on a drawing-board, and pin the corner out flat. Then we place the traced letter in position, black side down, of course, and go over its outline with a sharply-pointed, hard pencil. We remove the tracing-paper, and find that the blacklead on the back has allowed a faint outline of the initial to appear on the linen. With a very black pencil we strengthen this outline, but keep it as fine as possible. Then we damp the letter with a sponge, and wait till it dries, or iron it dry. This process will more or less "fix" the lead-marks on to the material and prevent them rubbing off while we are working. A loose, soft make of cotton is best for the embroidery, one which is very little twisted. Several well-known brands are almost equally good for this work.

First comes the padding stitch, which can best be understood by looking at the second picture. We use the same cotton, and arrange our stitches in the up-and-down direction shown, taking care to place more in the middle than at the edges, where we thin them off. Then comes the filling stitch, which is shown in the same picture. This goes across in the opposite direction to the padding stitch. We make these very closely together, entirely covering the padding. We should take care to keep the material held well down between the thumb and finger of the left hand as we go along, to avoid any puckering or pulling of the linen, and finish off at the back neatly. We must also try to follow the pencil outline very faithfully.

If our thread gets at all twisted we must notice this, and at once turn the needle round several times in the opposite direction. The threads, if twisted, will not "bind together" and look smooth on the letter when finished.



DESIGNS FOR THE BORDERS

The plainest letter will look well if neatly done, neatness and precision being the chief points in this work.

An excellent plan—if we wish to make our design a little more handsome and distinctive—is to fit round the letter a little border or wreath such as is shown in the third picture. The little patterns are padded and worked in exactly the same way, of course, as the letters themselves.

One advantage of giving a handkerchief for a present is that it is always acceptable. No one can ever have too many, which is not true of all presents.

HOW TO LOOK AT WHAT YOU DRAW

THE BEAUTIFUL SHAPES OF THINGS

EVERYTHING in life is relative. One boy is spoken of as strong because we know another who is not so strong, or is weak. Every assertion we make is the result of a comparison, and our judgments will be valuable just so far as we have considered the unknown in the light of the known.

We have found that the alphabet of drawing consists in the true lengths of lines coming against each other, and that the shapes enclosed correspond with the syllables of words or the phrases of music. We have seen that it is necessary to study a form before we can attempt to draw it. Drawing is recording facts we know. It is in its truest sense "memory drawing." We are not copying; we only refer to the object when we find that our knowledge of it is hazy. Our hands will do their work faithfully and beautifully if our minds are fixed upon realising *the whole,* and not dwelling upon details.

Boundary lines not only enclose shapes within them, but are division lines between surfaces. They belong to two sets of shapes, one enclosed and the other shut out. When we wish to draw the one, we must watch the other. We are not interested in anything contained in the shut-out space, so that our minds are free to consider only the values and directions of the boundary lines. By watching the shut-out space we see the boundary lines of the enclosed space big and simple. Our interest finally lies with this—the object. We draw an object by looking at the shapes of the spaces beyond it. An object makes a pattern with the background, and it is this pattern that we must draw. For this is what we call the music of shape.

Place a cardboard box upright on the table. Behind it put a sheet of white paper covered with upright lines, from one to two inches apart. Notice the position of the outer corners of the edges of the box in relation to the vertical lines—that is, that they are not all equally high. Mark these points on the background, and join them. The far edge of the table appears to touch the object one-quarter, perhaps, or one-third, from the bottom. Mark on the background the exact position, and draw the edge as it stands out from each side of the box. Darken the background beyond the box.

Let us step back and survey our work. We shall see the white box standing out against the darkened paper. If we remove the box we shall see its outside shape appear as a white space on the dark background; just what we saw when the box was there. Now let us examine this draw-

A picture showing the beautiful harmony between a mass of buildings and the surrounding country

A picture showing the simple musical shapes of a street scene

ing of the external shape of the box. First let us examine the values of its boundary lines. Which line is the longer—the line of the table or the line of the left-hand side of the box? Are they of equal length? If not, how much is one longer than the other? A half, a quarter, and so on. In this manner compare the lengths of every line on the background, remembering that slovenly observation is of no value at all.

Now we will examine the *shapes* on the background. Let us turn to the left-hand side. We have here two sides of a shape given us; they are the edge of the table and the left edge of the box as far down as the bottom of the background. Is it as long as it is wide? Is it longer, and, if so, by how much? That is, would it make a square or an oblong? Decide what the shape would be. Treat all the boundary lines in the same way, completing in imagination their suggested shapes. We must always ask ourselves if the completed background shapes would make a square, an oblong, or a triangle, wherever a space appears beyond an object or a group of objects. We must look from one to another, and judge their relative values—their values, that is to say, as they compare one with the other.

Pictures showing that the attitudes of figures are best expressed by their simple, beautiful shapes against their backgrounds

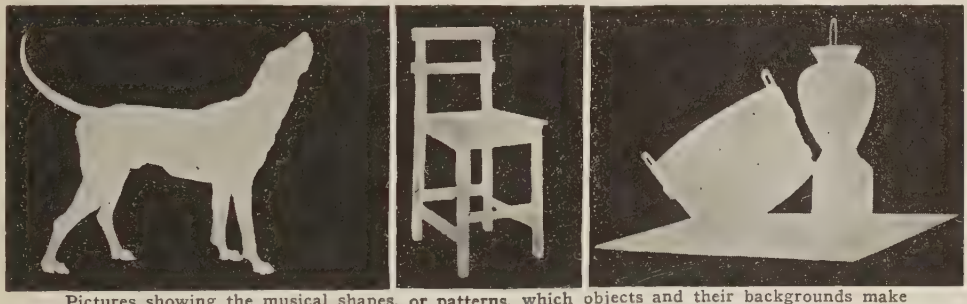
When we have drawn these background shapes, we find that we have the perfect external shape of the object before us. It is far more truly represented than it could have been had we looked at the *object* while we were attempting to draw it.

Mere mechanical, *mindless* copying is impossible when drawing in this way. During the whole time we are judging and finding out the different values of the shapes. They are no longer prisoners waiting to be judged: they are becoming friends. Each must receive from us quiet and courteous judgment.

Every line is relative as regards its direction as well as its length. When we draw a line, we can judge its inclination accurately by looking beyond the object at something else which has lines of whose direction we are quite sure, such as the vertical lines of the legs of desks, wall-panels, doors, and window-frames. So now do away with the striped background, and glance beyond the object you are drawing to see how much the direction of its boundaries varies from the vertical of some known upright line.

In this manner picture on your paper other objects, such as an open box, chairs, and toys. Place several of them together to make a group, and draw the pattern it forms upon the background. Then make a second drawing, and fill in the internal details, shape against shape.

Take a spray of privet, and place it before a sheet of white paper. Draw this on tinted paper with white crayons. Fill in the background with the white crayon, or draw it with pencil on white paper, and fill in the leaves. Now we have before us dark patches on a white ground, which are just like the dark leaves in front of the white paper. Look carefully, and compare the shapes of the background between the leaves. We might mark them one, two, three, and so on, beginning with the largest or with the smallest. Call the roll of these soldiers without fear or favour. Draw other sprays of leaves and flowers in the same way. Where several leaves overlap, draw the shape of the mass, not the separate leaves.



Pictures showing the musical shapes, or patterns, which objects and their backgrounds make

Let us try to tell another exactly what kind of music was in the heart of the architect when he planned the houses opposite to us. To do this we must not look at the details on their fronts, but at the sky-line, and note the shapes made on the sky background. If they are all alike, the music is monotonous; it is the broken sky-line, with its variety of shapes beyond, that gives us such pleasure when we visit old-world towns and villages.

So let us carefully compare edge with edge of the shapes of the sky beyond the buildings, and decide what each shape would make if completed. Draw these, and fill in the background neatly with white crayon, enclosing the whole as in a frame. Make a picture of it. Our buildings are now standing out as a dark mass against the light sky.

As we walk into town, or ride on the top of a tram or bus, let us look at the sky-line before us. We notice what a broken line it is. We see church spires standing above the rest of the houses like stately lilies among the lowlier garden plants, or a beautiful town-hall with its turrets and towers and gable windows.

As we look down the streets where the sky-line is evenly broken, our eyes soon refuse to dwell on them. We are glad to look up to the sky where the shapes are more varied and the music more joyous. Let us glance from the monotonous sky-line down to the houses below; we find them built all alike. There is very little that is happy or musical about them, whereas we find that the houses which had beautiful shapes against the sky have also pleasingly-shaped windows and gables.

We now know how to read the story that is written on the face of the sky. When we visit another town, we shall know more of the people of that town than they think they are telling us. We know either that they are telling everyone that they love this beautiful music of shape, and will have it about them; or else that they have either never heard of it, or do not care about it. Ugly, unmusical surroundings make us unhappy and miserable. This is not right; we are meant to live joyous lives. We want our towns and villages to be beautiful, and we now know wherein this beauty and music lie. By dwelling in the City Beautiful, our own work, too, will be beautifully done.

PLAY LESSON

Draw the sky-line of the streets near your home. Draw every one which you love to look down upon. You will soon find out why they attract you. Make a picture of your school: you may find that it is a beautiful building. If we look out of the window as night is coming on, we shall see the houses as a dark mass cutting against the lighter sky. Draw these as you see them.

AN EASILY-MADE SHELTER

If we are out scouting or camping, and wish to make quickly a shelter in which we can sit and rest, at the same time being shielded from wind or rain, this can be done quite easily. We stand three branches together in the same way as soldiers stand their rifles when they are resting, and of course, if the ends of these branches are forked, they can be supported against one another all the more securely. Then, leaving an opening in front, as seen in the picture, we pile up small branches and brushwood round the uprights, pressing them closely together, until we have a shelter like that shown.

The shelter complete

By sitting in this we can get protection from rain and wind, provided, of course, that we make the opening face the direction opposite to that from which the wind is blowing. In open country and wooded districts, branches and brushwood are always accessible, and to build a shelter like this is the work of a very few minutes. It is also very useful as a shady nook.

A clever boy can, from this picture, get an idea for a little shelter that is well worth building as a permanent resort in the garden. If straight branches be selected to pile up against the uprights, and they be fastened with tarred string, a little summer-house will be formed that will prove useful and at the same time, so far from looking unsightly or crude, will have a neat, rustic appearance.

HOW TO KNOW IF A RULER IS STRAIGHT

It is quite easy by a simple experiment to discover if a ruler has a perfectly straight edge. We place the ruler on a sheet of paper lying on a smooth surface, and, holding the ruler down firmly, rule a line against the edge with a well-sharpened pencil. Then we turn the paper right round, and, placing the edge of the ruler close against the line already ruled, we hold the ruler down firmly once more, and draw a second line along the edge of the ruler near the first line. If the edge of the ruler is not straight, the slightest inequalities will be seen clearly by looking closely at the two lines. There will be places where they are not the same distance apart, and, of course, the nearer together the two lines have been drawn the easier will it be to detect any irregularity. The ruler must, of course, not move during the ruling.

A STORY-DICTIONARY IN ENGLISH AND FRENCH

DICTIONARY

Ability means power.
Au-delà means beyond.
Bedouins are a tribe of Arabs who live in the desert.
Beverage means a drink.
Common means general, for the use of all.
Conclusion means end, finish.
Conduisit is the past of **conduire,** to conduct, or to lead.
Couvertures means covers.
Custom means way of living and acting.
Defend means to guard, to protect.
Emploient is the present of **employer,** to employ, or to use.
Exhiba is the past of **exhiber,** to exhibit, or to produce.
Firearms are weapons that are fired by gunpowder, like pistols.
Guest means visitor, a friend staying with us.
Hookah pipes are pipes with long tubes, smoked through water.
Hospitality means the receiving of visitors generously and kindly.
Laine means wool.
Mieux means best.
Nous voilà means there we were.
Privilege means an advantage or pleasure enjoyed by some particular person.
Prolong means to extend, to make longer.
Reclined means leaned, rested.
Recounting means telling over again.
Se coucher means to go to bed.
S'enveloppa is the past of **s'envelopper,** to wrap oneself up.
Sous peu means in a short time.
Tous les deux means both of us.
Traitent is the present of **traiter,** to treat.
Utmost means the highest, the furthest extent.
Vinrent à notre rencontre à cheval means came to our meeting—or to meet us—on horseback.

A VISIT TO ARABIA

Frank had been on a visit to Arabia, and he was *recounting* his experiences to some of his school friends.

"They don't live in houses in the desert," he told them, "but in great tents, and as soon as they saw us coming the old *Bedouin* and his little son, Hamid, rode out to welcome us.

"Hamid is a fine little fellow. I don't suppose he has ever played football or cricket in his life, but he is a splendid shot. Their life is so different from ours that Arab boys are taught to *defend* themselves when they are quite little, and they would rather play with *firearms* than with any toy you could give them.

"The Bedouins are famous for their *hospitality.* While you are their *guest;* they serve you to the *utmost* of their *ability;* but you are not expected to *prolong* your visit after three days, and when you leave they pass you on to some other friend.

"But I think you see the strangest of their *customs* at dinner-time. We all sat on rugs round a low table, and on the table was a great dish, from which everyone helped himself with his fingers—for they don't use knives and forks in Arabia!

"There was plenty to eat—goat's meat and rice, hot cakes, fresh fruit, and the most delicious coffee. The Arabs are very proud of their coffee, and it is the *privilege* of the eldest son to pound the berries for the father to make into a *beverage.*

"When all was ready, the old Bedouin picked out a choice bit of meat and put it into father's mouth—because he was the chief guest—and then each one helped himself out of the *common* dish.

"At the *conclusion* of the meal the men *reclined* on cushions, and smoked long *hookah* pipes; and when bedtime came Hamid took me over to his corner of the tent, and brought out a couple of blankets. He gave one to me, and rolled himself up in the other, and before long we were both sound asleep."

UNE VISITE EN ARABIE

François avait visité l'Arabie et racontait ses aventures à quelques-uns de ses camarades de collège. "Ils ne vivent pas dans des maisons dans le désert," leur disait-il, "mais sous de grandes tentes, et aussitôt qu'ils nous virent arriver, le vieux Bédouin et son jeune fils, Hamid, *vinrent à notre rencontre à cheval.*

"Hamid est un beau petit garçon. Je suppose qu'il n'a jamais joué ni au football ni au cricket de sa vie, mais il est bon tireur. Leur vie est si différente de la nôtre, que l'on apprend aux jeunes Arabes à se défendre quand ils sont encore tout petits, et ils préfèrent jouer avec des armes à feu qu'avec tous les jouets que vous pourriez leur donner.

"Les Bédouins sont fameux par leur hospitalité. Pendant que vous êtes leur hôte ils vous *traitent* de leur *mieux,* mais votre visite ne doit pas se prolonger *au-delà* de trois jours, et quand vous partez ils vous passent à quelque autre ami.

"Mais je crois que vous voyez la plus étrange de leurs coutumes à l'heure du diner. Nous étions tous assis sur des carpettes autour d'une table basse. Et sur la table il y avait un grand plat dans lequel tout le monde se servait avec ses doigts—car ils *n'emploient* ni couteaux ni fourchettes en Arabie! Il y avait beaucoup à manger—de la viande de chèvre et du riz, des gâteaux chauds, des fruits frais, et le plus délicieux des cafés. Les Arabes sont très fiers de leur café, et c'est le privilège du fils aîné de broyer les grains dont le père préparera le breuvage.

"Quand tout fut prêt, le vieux Bédouin choisit un morceau de viande qu'il mit dans la bouche de mon père—parce qu'il était le premier hôte—et puis chacun se servit dans le plat commun. Quand le repas fut terminé, les hommes se reposèrent sur des coussins, et fumèrent leurs chibouques; et quand vint l'heure de *se coucher,* Hamid me *conduisit* à son coin de la tente, et *exhiba* une paire de *couvertures* de *laine.* Il m'en donna une, et *s'enveloppa* dans l'autre, et *sous peu nous voilà tous les deux* dans un profond sommeil."

A GARDEN GROWN ON A WALL

THERE is many a naked and unsightly wall in town and country that might, with little trouble, be beautifully draped in Nature's garments of restful green, with patches of blue and red and yellow. Some of the most pleasant memories of those who have travelled in England are the walls of the old cloisters long since fallen into decay. No one who has been in Peterborough can ever forget the walls around the cathedral there. There are some old walls in New England which are equally beautiful..

Some walls, of course, have their covering of Virginia creeper, and, in the proper season, their thick and gorgeous mantle of sweet peas or nasturtiums, but the roots of these plants are in the ground, and it is not always convenient to have a flower-bed at the foot of the wall.

A WALL COVERED WITH BLOSSOM

Far more interesting than any such covering as has been mentioned is a real wall garden, with plants actually growing on the wall, and if we will take a little care with this novel garden we can get a rich harvest of blossom from early spring right through to late autumn.

A wall garden may be started at any time from now on to the end of the summer, and the ugliest spot can be rendered beautiful. The best kind of wall for a garden is an old stone wall, with plenty of crevices into which the roots can find their way and take firm hold. We can prepare the wall by making little artificial pockets here and there in which to plant the various flowers.

All along the top of the wall, too, we can form pockets by placing rough stones together, so as to leave recesses for the mould. Holes made with a chisel, even, are large enough for plants to take root in. The pockets must be filled with damp soil.

We do not need rare and expensive flowers for our purpose; in fact, we can cover our wall with familiar wild flowers. If, however, we decide to have some of the cultivated varieties of flowers, it will be best for us to raise the seed in a greenhouse, and then when the roots are well formed to plant out on the wall. This is done by lifting the whole plant with the little mass of earth that is held together by the roots, and pressing it down into the moist soil in the crevices or pockets of the wall.

PLANTS FOR SUNNY AND SHADY WALLS

Of course, in selecting plants for our wall garden, we must take into consideration whether the side on which the garden is to be is warm and sunny or whether it is in the shade most of the day. For the sunny side some of the dwarf campanulas, or bell-flowers, are excellent. The wall campanulas are particularly suitable. The pinks are also very good for a sunny wall.

Seeds and cuttings should be planted in a light soil in June, and placed on the wall as soon as ready. The sedums or stonecrops, and the sempervivums or house-leeks, are also good. Snapdragons and poppies are all very useful flowers for a garden, and wallflowers are, of course, particularly suitable and effective, as those who have seen the cloister walls of Peterborough Cathedral in spring and early summer well know. These walls are literally a blaze of golden colour.

On the shady side the yellow corydalis is easy to grow, and is very pretty with its dainty foliage. London pride, too, makes a fine show when planted high up on a wall. The mossy saxifrages, and many of the hardy primulas or primroses can also be grown.

Many alpine plants will flourish on an old wall, and any nurseryman will be able to supply a varied selection.

But beautiful and interesting as the wall garden is when covered with flowers supplied by the nurseryman, it is still more interesting and quite as pretty when all the flowers that grow upon it have been collected by us during our rambles.

WILD FLOWERS FOR THE WALL

Among the sedums we should secure biting stonecrop, which is very common on rocks and sandy ground; English stonecrop, which is found in similar places near the sea.

Some of the toad-flax family will flourish in a wall garden. The ivy-leaved toad-flax, or mother-of-thousands, with its delicate foliage and trailing stems with myriads of lilac or white blossoms is a very charming plant for a wall, and the common yellow toad-flax, better known as "butter and eggs," will also grow well on a wall, as many of us can testify.

One of the most showy and handsome wild plants for a wall garden is the red valerian. It is often grown as a garden flower, and will thrive nowhere better than on an old wall.

The money-wort, or creeping jenny, with its trailing stems, shining leaves, and bright yellow flowers, is a plant that no wall garden should be without, and has become naturalised in America.

The mountain willow-herb, the wild pinks, the sea-pink, the starry saxifrage, the purple mountain saxifrage, the yellow mountain saxifrage, the wild hop, the white arabis or rock-cress, viper's bugloss, and the yellow alyssum are all familiar wild flowers that are easily found and excellently suited for a wall garden.

Some may prefer to cover a shady wall with ferns, and certainly small ferns look nowhere better than when growing in such a position. Many varieties will grow on walls, and they are easily obtained from rocky fields, caves, brooks which run through woods, and places where the railway line is cut down below the level of the surrounding country.

CONTINUED ON PAGE 6007

A sea-horse and the heads of two whales as imagined by artists of the long ago

THE ZOO THAT NEVER WAS

ANIMALS OUR ANCESTORS BELIEVED IN

CONTINUED FROM PAGE 5831

A CLEVER man has been writing about the intelligence of animals, saying that we give them credit for far more sense than they possess. How can we believe the horse to possess much sense, he wants to know, when, after the thousands of years that it has been domesticated, it still shies at a white stone on the road, or runs away and dashes itself to pieces at the sight and sound of a steam-engine or motor-car?

That seems very hard to answer. When we come to think it over, however, while we cannot but regret that some horses should still do these stupid things, we have to remember that the human race has not always been as wise as it is to-day. We remember that men have believed things which are quite as absurd. The horse is descended from a wild animal which learned that by a sudden rearing and swerving it could avoid the attack of enemies waiting to attack it, so to-day, when taken by surprise, it still shies on the road, because its instinct of fear and desire to avoid danger are not dead. Its instinct overmasters its higher reasoning powers.

And exactly the same thing happens in the case of men to-day. Up and down the country we find goats in stables. Why is that? It is because the grooms have a superstition that the goat keeps disease away from the horses. Country people often believe that the nightjar robs goats of their milk, and call the bird the goat-sucker. Others believe that harmless little newts are endowed with a deadly poison, and think that frogs spit poison.

Savages, of course, have the most extraordinary beliefs. They *worship* everything that frightens or puzzles them. In parts of India they worship plague and cholera. One African tribe worshipped the bottles which had contained the medicine that cured them of illness. But the beliefs of savages are not more absurd than the beliefs which our ancestors held, even in days of learning. We can laugh at these beliefs now, but we can also get some instruction out of them. We must not forget that our ancestors believed in magic, and, believing in magic, nothing seemed impossible to their minds. They thought that the toad had a precious stone in its head, and that this stone could cure sickness. Hence so-called toad-stones became common.

Half the animals that never existed were supposed to have magic powers. Thus the unicorn, which figures in the national arms of England, was believed to possess magic in its horn. Men went on long pilgrimages in search of this animal, which was said to roam in India, Arabia, and Mo-

rocco. No man arrayed as a man could approach it. He must disguise himself as a young girl, perfume his clothes, and lie down in the haunts of the unicorn. The unicorn, attracted by the scent would then approach, and, charmed with the sweet odour, would lay his head in the supposed maiden's lap, and

The unicorn as it was supposed to be

fall asleep. Thereupon the hunter had to grasp the horn, and, with a single powerful wrench, pull it out! Or, if that were too bold a course for one man, then, the disguised hunter lured the unicorn to him, while others lay in hiding and dashed up to seize the coveted horn.

How men of the time managed to impose this story upon thier hearers is not for us to decide. They were bold enough to tell the tale and actually to produce what they called the "horn of the unicorn." A writer of the time of Queen Elizabeth mentioned one which he saw at the queen's court. It was worth £10,000, he said, and in our time this would be about $250,000. What really was this unicorn's horn? It was the spiral horn, or tusk, of our old friend the narwhal! The rhinoceros was supposed to possess something of the qualities of the unicorn, and brave Marco Polo, the traveller, said that it did no harm with its horn, but with a fearful tongue, all covered with prickles, it rasped the flesh off its victim's bones!

How did men get their idea of winged dragons? There really were, once upon a time, creatures in some ways resembling the things which the frightened imaginations of men pictured. But they belonged to the age of great reptiles, and there were no men alive to know of them. The fact that these creatures had existed was not known to the world until long after men had ceased to believe in dragons. The real dragons did not breathe fire, nor had they for parents the eagle and the wolf, as our ancestors believed. There were no eagles or wolves when the real dragons walked upon the earth or flew in the upper air. All sorts of terrors were supposed to result from the dragons. As the unicorn and the rhinoceros were said to free the waters from the poison of the dragons, we have another reason why these animals were held in such respect.

But our ancestors did not waste all their fright over the dragons; they believed that the basilisk was a brute still more to be feared. This reptile, which was considered the king of its order, was supposed to be hatched by a serpent from the egg of a cockerel, and the cockerel was the only creature of which it was afraid. A glance of the basilisk's terrible eye was said to kill a man, while the creature was supposed to be so charged with poison that it infected the air, so that all living things, plants, herbs, beasts, and birds fell dead wherever it went. We can see for our-

An imaginary flying dragon

selves what this frightful monster really was, a lizard living upon little insects and small creatures frequenting the water and foliage in which it lived.

That gives us an idea of the power which our ancestors had of frightening themselves over innocent animals. They believed that there were creatures called satyrs, which had the head,

horns, legs, and feet of goats and the bodies of men. Then there were all manner of dreadful stories of hairy men with tails, which we know now were distorted accounts of the great apes. Every child to-day is familiar with the idea of the sphinx; but when we speak of the sphinx we think of that great image in the sands of Egypt. In the old days, however, the sphinx was a thing of real terror to men. They thought of it as an actual living creature — an animal with a human head and face, the body of a lion, the wings of a giant bird, and the tail of a dragon. But the griffin was still more to be feared. This was a creature which had the head and neck of an eagle, a hundred times enlarged, and the body of a lion, eight times as big as that of an ordinary lion. His talons were said to be as long as the horns of an ox, while his bones were so great that his ribs made bows for the stoutest warriors. No wonder, if this monster was believed in in Europe, that the Eastern peoples believed in the giant bird, the roc, which was said to fly away with characters in the well-known "Arabian Nights." Then we must not forget the phœnix. This was a marvellous bird, sacred to the sun. It was as big as an eagle, with brilliant golden plumage round the neck, while the rest of the body was a purple colour. The tail was composed of long and brilliantly coloured feathers. Here, undoubtedly, we have the golden pheasant, which we may see any day at the Zoo. It is not as big as an eagle; it does not rise alive from its own dead body; it does not live 540 years — all of which was believed. But it otherwise answers the description which the old naturalists gave it. They *did* see a golden pheasant, then very rare in Europe, and had to weave a tale of marvel and magic and mystery round it.

The gorgon as our ancestors imagined it

An imaginary sea-bishop

They invented marvellous stories about the fox, the wolf, the hyena, the lion, and so forth. Men were supposed to be turned into wolves, and these "wolves" were supposed to be far more fierce than the ordinary beast of prey. Natives in India still believe that men are turned into tigers, and the natives of Australia imagine that they themselves are inhabited by the spirit of an animal, or a tree, or a plant. Much the same sort of ideas are to be found among the savages of Africa. The faith which our fathers in Europe held in the Middle Ages was much like that of the savage people of the world to-day.

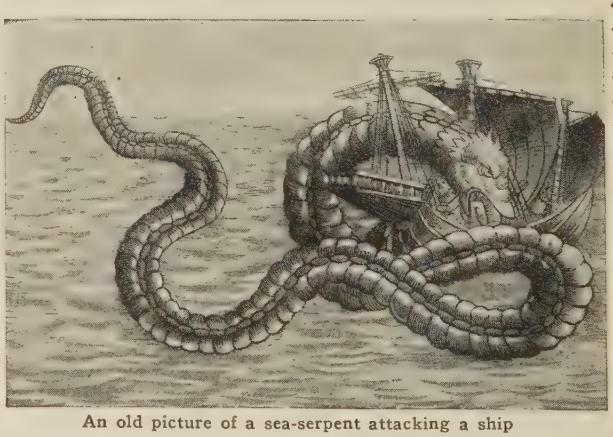
A dragon that many Chinese believe in

How firmly the old beliefs were held we may know from expressions used to-day. We still speak of a movement which has seen evil days, and comes again to prosperity, as "rising, phœnix-like, from its ashes." We still speak of persons who like the heat of the fire as "salamanders," because the salamander was believed to live upon fire. We still use the word "gorgon" as a term of terror and horror. The ancients had their gorgons, monsters whose heads were clad with serpents instead of hair. But our later ancestors had a gorgon of quite another kind. *Their* gorgon was a fearful creature living in Africa. It had the body of a giant armadillo, with a serpent-like tail, and the legs and feet of a pig, but it was all armed with great scales. The head was like an ox's, covered with coarse hair. But the eyes and the breath were the thing. Men were not quite sure which did the damage, one or the other sent forth poison which instantly killed men or animals who might attack or even approach the gorgon.

An old picture of sailors encamped on the back of a whale

Even a child can laugh to-day at the ridiculous things which frightened the wits out of our greatest scholars and philosophers of old time. We might not be so amused if our ancestors had merely believed in these things, as silly people in our own day believe in ghosts and witches; but they wrote solemn books describing terrible adventures with these imaginary creatures. The list of impossible things in which people believed in these ages is almost endless. There was a certain sort of lamb which grew on a tree. There was a tree which grew out of the sea from the timber of wrecked ships and produced geese. There was a frightful thing called the chimera, an awful creature with three heads — those of a lion, a goat, and a dragon. There were fabulous creatures called harpies and sirens which drew seamen to destruction. The harpy had a woman's face and body, but the talons of an eagle. The siren we know to-day is a terrible screeching thing used by motorists to wake sleepy drivers on the road, or by steamers at sea in a fog; but the sirens of old time were supposed to have lovely voices, which drew navigators from their course at sea, and lured them on to rocks.

We need not be surprised that the sea gave our ancestors good scope for nightmare stories in which they could all believe. Even to this day, the vast, mysterious ocean has a fascination and terror. We all know the sea-lion, which is simply a big seal. But it used to be considered a monster of the deep like a real lion, clad in mail. The idea must have come from some observer noticing that this seal, when dry, shows a good



An old picture of a sea-serpent attacking a ship

ST. GEORGE'S FIGHT WITH THE DRAGON

The fight of St. George is supposed to represent the triumph of Christianity over paganism. People once believed that a fight with a real dragon actually took place.

A fight with fire-breathing bulls and a dragon

mane, giving it rather a lion-like look. Then somebody would argue from this description that the sea really had a lion, and would add the coat of mail as an ornament to his story. We have also the sea-elephant, a huge, funny-looking seal, with a snout something like a small elephant's trunk. Long ago men wrote about a sea-elephant, and drew pictures of it, making it appear that the animal had the head, trunk, tusks, and front legs of an elephant, the hind quarters being simply the body of a fish.

The size and strength of the whale should be enough to satisfy anybody, but it was not enough for our ancestors. They described it as being about 960 feet long and 480 feet broad. The teeth were said to be 12 feet in length, and the eyes were so big that twenty men could sit in the space of one!

The whale was said to have two horns, or tubes, through which it sent great columns of water that would sink any ship. Then the whale was declared to rise above the clouds and, descending upon the ship, sink it. Further, its head was armed with a great number of prickly horns. We can see here, through the exaggeration, that someone had tried to describe a toothed whale, but the idea of the horns about the head had arisen from the plates of baleen in the mouth of the whalebone whale. This monster was said to come up to the surface of the water, bearing quantities of sand upon its back. Sailors would approach in their ships, and, mistaking it for an island, would cast anchor in its back, land, and make a fire on it to cook their meals, until the whale, feeling the heat, would dart down into the sea, carrying men and ship.

There remained the kraken to describe. Now, the kraken was the most terrible of sea-beasts. There were supposed to be sea-bishops and sea-monks who did all sorts of alarming things for the terrifying of unhappy mariners, but the kraken was the worst of all. It was a creature whose back measured a mile and a half in circumference, so that, as it floated on the crest of the waves, sailors mistook it, as they mistook the whale, for an island. But the kraken had arms like the tallest masts of ships, and with these it could seize the greatest vessel and pull it down beneath the waves. When the kraken sank, it was supposed to create such a whirlpool that all ships near were sucked under, and their crews drowned. It was a Norwegian bishop who first spread the story of this monster. There can be no doubt

that he really did see a very large cuttlefish. Nobody knows how big the biggest of these really is, but we know that its body is nothing like what the frightened bishop thought he saw, nor are its arms capable of upsetting a ship. The stories of the kraken grew rapidly, but they became mixed up with stories of the sea-serpent, of which the most fanciful tales were told. There *may be* a sea-serpent, but, so far, no story has managed to stand unshaken. Ribbonfishes have been mistaken for sea-serpents, a line of whales with peculiarly shaped backs has had the same effect, and many other curious sights have misled men into telling the same old story.

Then there were the mermaids and the mermen, and to-day many people believe still that these creatures actually exist. Poets have helped to keep the belief alive, and Matthew Arnold wrote a lovely poem on the subject. The mermaids were supposed to be beautiful women having the tail of a fish, and the mermen were the male members of the family. The mermaids and their lords and lovers are only manatees and dugongs, or sea-cows. All the mermaids of our poems and stories are lovely in feature, but the animals themselves are rather hideous, and dull, stupid things, too. They are about ten feet long, with curious fleshy muzzles ending in a sort of disc. The great virtue of the mother manatee or dugong is her love for her little one. She tends it with all the care and affection possible. When she feeds it, she raises herself in the water, clasps the little one to her, holding it with one flipper, while she swims with the other flipper. Thus, at a distance, a sailor might imagine the pair to be a mother and her child in the water. The legend as to the streaming hair could scarcely come from the bristles with which her head and face are surrounded. The manatees and dugongs live on seaweed, and no doubt observers thought that this seaweed was mermaid's hair. One kind of merman was called a sea-bishop, because it was supposed to have a mitre-shaped head.

The list of absurd things in which our forefathers believed is not nearly exhausted, but those at which we have glanced help us to understand the strange world of thought and fancy in which they lived. We are not so far above our ancestors in some ways as we often imagine. Even now, in many a village, and in some big towns too, deep ignorance prevails.

THE NEXT PART IS ON PAGE 6039.

Hercules slaying the many-headed hydra

THE BEAUTIFUL LAKES OF FINLAND

A PICTURESQUE CORNER OF A LAKE ON THE EDGE OF A FOREST

WAITING FOR THE STEAMER AT A RUSTIC PIER AMONG THE PINES

SCHOOL CHILDREN SPENDING A DELIGHTFUL HOLIDAY BY A FOREST LAKE

Helsingfors, the capital of Finland, one of the two most important naval stations on the Baltic

BRAVE LITTLE FINLAND

CONTINUED FROM PAGE 5826.

A STRUGGLE to the death is going on in Europe to-day. Little Finland, without an army, without wealth, and with but few people, is determined to keep its old rights and freedom against huge Russia, with its immense armies and power.

Freedom-loving people cannot look on unmoved at this struggle. One who loves this brave little Finland well speaks of it as an almost perfect place to live in.

"Our home," she says, "is on an island all to itself, in a lake. In the summer holidays we live out of doors all day. Such long days, for the rosy flush of sunset almost mingles with that of dawn. We swim, boat, and fish; we have picnics, and take our hammocks to rest in under the trees. There is time to listen to the thousand voices of Nature, so that the music sinks into one's very soul. In winter a thick mantle of snow lies on the land and the trees, and the Frost King tightens his icy grip on the waters. What times we have then! We skate for miles and miles, or travel over the snow in our long snow-shoes, or enjoy tobogganning or sleighing. And there is ever the beauty of the winter skies!

"The sun mounts above the horizon for a few hours, lighting up the sparkle on the trees and snowy ground. When it is gone the deep purple-blue sky is ablaze with shining stars. How glorious, too, is the winter moonlight, and often the whole sky and land are lit up by the flaming Aurora. We never seem tired in the clear, keen air, and are always ready to join in the parties, the games and the story-tellings round the bright wood fire."

As we gazed at the dear girl speaking thus, her clear, truthful eyes all aglow with happy memories, and every line of her charming face showing strength and goodness, we felt as if a bright searchlight had suddenly flashed out before our eyes on Finland. "Finland," we muse. "What do we know about it? Arctic Circle, reindeer, lakes, forests, troubles with Russia." And that, perhaps, is all.

Now we feel we must see our friend's country; so without delay we catch the steamer for Finland, tucked away in the far end of the Baltic, between its two arms, the Gulfs of Finland and Bothnia.

Thirty-two hours of open North Sea, passing through the fleets of the deep-sea fishermen, brings us to the winding, narrow passage into the Mediterranean of the North leading to Finland, or Fen-land, which in Finnish is Suomi. She is also called the Last-born Daughter of the Sea. As the marks on her rocks show, she is still rising a few feet each century above the tideless waters; one-tenth

of her whole surface — which is about that of Iowa and Missouri together — is covered with lakes. No wonder the little Finns learn to swim and manage boats almost as soon as they can walk.

Ages ago, when Finland lay under an ice-sheet as thick as that which now covers Greenland, the mighty glaciers ploughed deep furrows over its hard granite face. These furrows, filled with water, form the thousand lakes which make the great beauty of Finland.

As we trace the lakes, leading into each other like a maze puzzle, our eye is caught by Lake Ladoga, half in Finland, half in Russia, the largest body of fresh water in Europe.

Long ago tribes came from the east to settle in the great plain west of the Ural Hills. And as there were others crowding behind, the earliest settlers were pushed gradually northwards. They are known to-day as Lapps, those interesting folk rich in reindeer, and living in tents in the loneliness of the Land of the Midnight Sun. The ancient Finns spread themselves by degrees over the Land of a Thousand Lakes, to the south of the Lapps between Lake Ladoga and the arms of the Baltic. They hunted in the vast forests, traded with furs, fished in the lakes and rivers, and grew crops.

FINLAND DEFENDING HER LIBERTIES
Here the artist shows us Russia in the form of an eagle attacking the laws of Finland, shown as a maiden

The message of the Prince of Peace was carried then to the pagan Finns by an Englishman, Bishop Henry, sent by the only English Pope, Adrian IV.

Now, Henry was Bishop of Upsala, just across the Baltic, in Sweden, and the saintly King Eric of that country entered with zeal into the work of bringing the Finns to the Christian faith.

Within a hundred years of their labours Finland had become not only Christian, but a province of Sweden, and Swedish rule brought many advantages to the country. The Finns were represented in the Swedish Parliament, and they gained much from Sweden in the way of book-learning, arts, and trades. Many Swedes settled in Finland, and for six hundred years there was constant going and coming between the mother country and the Grand Duchy, as Finland came to be called. In winter, on the thick ice of the Gulf of Bothnia, sleighs passed by the "winter way;" in summer, fleets of boats dotted the blue sea. Abo was the old Finnish capital for hundreds of years.

Presently the Swedes came into direct touch with a Power that, starting on the Volga, was growing in all directions, and stretching with ever-persistent longing towards the sea. "Ports I want, not land," said the greatest of the Tsars, Peter, by whose iron will St. Petersburg sprang into being. The Russians succeeded in getting to the White Sea, the Black Sea, the Baltic Sea, which gave the much-coveted "window" into Europe. But they wanted more than a window; they wanted the harbours and ports all along the coast of Finland.

This caused a desperate struggle through long, long years between Sweden and Russia. Now Russia had success; then a strong leader among the Swedes wrested the province back again. The boundary line was shifted over and over again. At last Sweden gave up her rights to the Grand Duchy, and Alexander I., Tsar of Russia, became Grand Duke of Finland, by an Act of Union, not by a mere act of conquest. For Alexander promised solemnly to keep to the old laws, to the old form of government, and the pledges taken on both sides have been renewed again and again.

A FINNISH STATUE OF LAW
This finely expresses all Finland asks from the Tsar — that he shall keep the Law which makes Finland free

During the peaceful years that followed the union an amazing growth took place. Cities were built, Helsingfors became the capital instead of Abo, trades and all sorts of industries sprang up, and the number of people increased rapidly. But the most wonderful growth took place in the people themselves. Constant wars had hitherto given them no chance of developing. There were few schools, few books in the Finnish language; it was chiefly the descendants of the Swedes who were educated. But intense love of country was ever deep down in the hearts of the Finnish people, ready to build up a united Finnish nation when the right leaders should arise.

Great teachers did arise at the right moment. They were chiefly three. One was Snellman, who showed

A FINE GROUP OF A SHIPWRECKED FAMILY
From the sculpture of the Finnish artist, Stigell

THE PEASANTS OF FINLAND AT WORK

A COWBOY WITH HIS HORN

A FINNISH FISHING BOAT

BURNING A FOREST TO CLEAR THE GROUND FOR CULTIVATION

IN THE HOMES OF THE FINNISH PEOPLE

A PEASANT FAMILY EATING THEIR MID-DAY MEAL IN THE LIVING-ROOM

FISHERMEN AND PEASANTS HAVING A QUIET GAME OF CARDS

that the Finns must make up for their fewness in numbers by universal and thorough education. They could not, he saw, hope to win their way and keep their independence by bodily force, but by the force of their minds and characters. He saw, too, that Finnish, not Swedish, must be the language used in the education of the Finnish people. Another of the national heroes of this time was Runeberg, a great poet, whose beautiful patriotic songs stirred all hearts.

Another of this noble band of friends was Lônnrot, a village doctor, who wandered all over Finland, making friends with the people in their little cottages, listening with them to the old songs and stories handed down through the memories of countless generations of runo-singers. Lônnrot collected the songs, pieced them together into one great poem, and wrote them down as Homer did for Greece.

THE SONGS OF THE HEROES OF THE PAST

This "Kalevala" — songs of the Land of Heroes — is a truly wonderful book, as wonderful as the collection of old stories made by Homer.

When the "Kalevala" appeared, with its songs and legends, proverbs and descriptions, all printed in Finnish, Swedish alone was in use in Parliament, in the courts of law, in the schools. But from that time the patriots did all they could to improve the Finnish language, translating books into it, starting Finnish newspapers, teaching Finnish in schools.

But the Grand Duke of Finland, with its 3,000,000 of educated people, strongly bound together in patriotic feeling, is also Tsar of All the Russias, lord of a huge country, one-seventh part of the land in the world, ruling hundreds of millions of people of widely different races. Can we wonder that the Tsar Grand Duke should be anxious to bring free little Finland, at his very gates, more into line with the rest of his wide-spreading dominions?

A GALLANT PEOPLE'S STRUGGLE TO BE FREE

An attempt had been early made to stop the printing of nearly all books and papers in Finnish. Later, the Tsar, with the help of his council at St. Petersburg, proposed making laws for Finland without consulting the Finnish Parliament. Finnish soldiers were to be sent to distant parts beyond their own country.

The nation refused as one man to obey and a reign of terror began. There were spies everywhere; banishments and imprisonments without trial; the press was muzzled; and force did its worst. But after a season things changed for the better, owing to various reasons, and the exiles returned home.

Our steamer left Hull, England, on Saturday; we spent Monday night at Copenhagen; and here we are on this delicious Thursday morning drawing up to the quay at Abo, with the red cathedral towering above all, reminding us of Bishop Henry and the Swedes. We soon find our way, admiring the old wooden houses with their large courtyards as we go, to the old castle.

THE GREAT WORK A SCOTSMAN DID FOR FINLAND

A journey of a hundred miles by train inland, through fields of many different sorts of crops, brings us to Tammerfors. This is the Manchester of Finland, but here are very few smoky chimneys. The factories are built along the banks of a full, rapid river, leaping from boulder to boulder. It was a Scotsman who first saw the possibilities for a manufacturing town on these banks, and another Scotsman first harnessed the tireless giant who turns the machinery.

Then we start again northwards through some beautiful country. River after river we cross, over the bridges, and look at the great wood brought down by the rapid rivers.

Still we go on north to Tornea, by rail, and thence by boat on the Tornea River, the boundary between Finland and Sweden, to Mount Aavasaksa. Why? Because we simply must see the Midnight Sun — and this is the most southerly point in Finland, not far from the Arctic Circle, whence it can be seen.

We also get glimpses here of the picturesque Lapps, and fill in from the

AN EARLY MORNING SERVICE BY THE SEA IN FINLAND

scenery round us the background of some of the "Kalevala" stories of the northland and its wild folk. Delightful is the account of the feast when the beautiful Rainbow Maiden of the North married the handsome hero who made the firmament, and was so strong and daring.

Towards Karelia, an old province in the southwest, we now wend our way, sometimes in light two-wheeled carts, sometimes by train, more often by steamers, which use wood for fuel instead of coal. We understand how half the nation lives by the timber trade as we pass through miles of forest, and see the tugs towing along the strings of rafts, looking in the distance like twisting sea-serpents. Our fellow-travellers interest us greatly. There is a peddler going to visit homesteads far from shops; here are merchants and farmers out on business. Those are lumbermen on their way to work in the forests; next is a party of tourists. Another time we see families of Finns on their way to their country homes on the islands or the shores of the lakes. And at every little pier are country folk in their bright-coloured aprons and ker-

FINNISH WOMEN DEPUTIES — ONLY WOMEN PARLIAMENT MEMBERS IN THE WORLD

chiefs — the pier-master is often a gaily-dressed young woman — and the shy, fair-haired children offer us the delicious little wild strawberries.

We eagerly spy out their homes, the pretty red farms and cottages in the clearings, and get glimpses of their elder brothers and sisters tending the cows, or carrying the milk to the clean dairies; no wonder Finnish butter is good.

THE LAKE OF A THOUSAND ISLES, AND THE LAND OF A THOUSAND LAKES

Finland is called the Land of a Thousand Lakes; the Saima Lake is called the Lake of a Thousand Isles. As we thread our way we can scarcely believe we are not on a narrow, winding river. The channel is often staked off with white poles, to show where it is deep enough for the steamer, and everywhere are rocky cliffs, and ridges crowned with silver birches. The sweet-smelling pine forests come down to the water's edge.

And then there comes a warning that this heavenly, peaceful time is coming to its end. We hear a roaring far off which gets louder and louder as we near the grand rapids of Imatra. Here the surplus waters of the lakes we have grown to love are leaping from boulder to boulder with terrific force, for the length of half a mile, on their way to Ladoga.

Great columns of water rise high in the air and fall in clouds of spray, spangled with rainbows. It is a breathless, deafening scene. The mighty roar of the waters reminds us of the noise of a great storm among the trees; and mingled with it is an awful sound of grinding, as if huge stones were being dashed to pieces.

THE GREAT STAIRCASE UP WHICH THE STEAMERS CLIMB

We are to meet our Finnish friend on the Saima Canal, which connects the Great Lakes with the Gulf of Finland. Thirty-seven wonderful miles do we travel by it, our steamer descending the two hundred and fifty feet between the level of the lake and that of the gulf by twenty-eight noble stairs, the granite locks that are a triumph of engineering.

At last we are at Viborg, the ancient Swedish outpost on the east. The old thirteenth-century castle bears marks and scars from the centuries of struggle. It needed the genius of Peter the Great to wrest it from its brave defenders.

From Viborg we take boat to Helsingfors, which has been the capital of Finland for nearly a hundred years. Our friend points out on the way the Högland Island, from whose quarries came the magnificent marble used for Napoleon's tomb. This we had seen quite lately in the solemn golden light under the dome of the Invalides, by the Seine.

We climb at least two heights to get a good view of beautiful Helsingfors — the Observatory on its hill for one — and gaze far out to the surrounding water and islands, to the grim old fortress of Sveaborg; and then we pick out the house where the Finnish Parliament meets, the Senate House, and Town Hall, the magnificent theatre, and the University buildings, where men and women study in perfect equality.

THE GOOD TSAR WHOSE PROMISE ANOTHER TSAR IS BREAKING

We spend several days looking closely at the charming market, where the peasants sell their home produce, at the collections in the galleries, which bring the story of the Land of Heroes so vividly before us. The statue of Alexander II., the great Liberal Tsar, with the significant words "Law, Light, Labour, Peace" on its base, brings to mind his goodwill to his Finnish people. In the "days of grief" a few years ago, when Finland seemed to be on the verge of losing her ancient rights, crowds gathered round the Liberal Tsar's statue, as crowds gather in London to discuss pressing questions in Trafalgar Square. The Finns were driven back by the Cossack troops.

Our friend will not let us leave the country till we have seen Borga, where Alexander I. signed the famous promise that the constitutional liberties of Finland should be held sacred for ever — the promise which another Tsar, the present ruler of Russia, is breaking even now.

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The marriage of William the Conqueror to Matilda of Flanders, in Normandy

CONTINUED FROM PAGE 5891

A THOUSAND YEARS OF KINGS

GOD save the King! The English can say what can be said nowhere else, that their King's ancestors have ruled the land with hardly a break for more than a thousand years. These pages do not give a history of England, but a pageant of her kings, a picture of each, except a few of the very early ones, beginning with one of the wisest and noblest of King George's ancestors.

Who was the first King of England? We had best reckon that Alfred the Great was, for it was Alfred who made the country into one kingdom, for which great act of kingship men love and honour his memory, though he has been dead for a thousand years. He stands out as one of the great heroic figures of all times, who found England rent and torn, and falling to pieces, and welded its peoples into one nation, fighting, not for his own welfare and glory, but for the welfare of his countrymen and the glory of God.

Perhaps there has never been another man of whom it can be said that he was the bravest, and the wisest, and the best of all who lived in his day. He feared no danger; if things went ill, he never gave in; when things went well, he only strove to make them go still better. He taught men to love peace and order and justice and mercy, but he taught them also how to fight.

Great men nearly always make enemies, but never a word has anyone been found to speak against Alfred the Great, founder of England's greatness.

Kings wise and strong reigned after Alfred, but in time came the evil days of Ethelred the Unready, when woe came upon England, and Sweyn, King of Denmark, conquered the land, driving out Ethelred for the traitorous deeds he had done; but Sweyn, dying, gave England another great king — his own son, Canute.

Canute was really a sort of emperor, for in those days the Danes had a great kingdom, and he was king of the Danes as well as of the English. He, too, was a wise man and a valiant warrior. The thing that he did for England was to make the Danish folk and the English folk in England into one people, but after him the English kingdom and the Danish kingdom were severed again.

For Edward the Confessor, a descendant of Alfred the Great, came from Normandy to be made King of England. A very pious

man was King Edward, guileless, but having no skill to govern, and loving the customs amid vhich he had been brought up. When he died, the English chose for their king Harold, the son of Godwin, a shrewd soldier and brave; but, because they had forgotten to stand together, all Englishmen shoulder to shoulder, William the Norman was able to conquer brave Harold at the battle of Hastings, and a Norman duke became King of England.

A mighty man was the Norman duke William, who made himself King of England and began the Norman line. Men said he could bend a stiffer bow and wield a heavier mace than any man of his time, and few were the knights who could meet him in the shock of fight.

Little enough did William care for aught but what concerned his own will; what he would have, he would take, and woe to him who stood between the great duke and his desire. All men had fear of him, though he had fear of none.

THE MIGHTY DUKE WILLIAM

But his desires were not petty or wanton; they were for the most part the large ambitions of a conqueror. He made all England feel the stamp of his own iron heel, and he counted the lives of Englishmen cheaper than the lives of his hounds and the tall deer — for these, says the chronicler, "he loved as he had been their father," and destroyed homes to make a forest.

William the Conqueror covered the land with Norman barons, to whom he gave castles and lordships, and they oppressed the English folk not a little. He made all men who held land do homage to him as overlord of all. He made a survey of all the land, which was recorded in Domesday Book, and he set over the Church rulers whose discipline was sterner than that of the old Saxon prelates. He made harsh laws, too, so that his barons had much more power over the English folk than ever the old Saxon earls or thanes had had.

The fierce old king met his death warring in Normandy. His second son, William, called Rufus, the Red King, seized the throne. Whatsoever there was of evil in the Conqueror was tenfold in Red William, but all that was grand in the father was lacking utterly in the son. Yet he was so strong in arms that he, too, might have been a conqueror if he had ruled himself, and not suffered evil passions and desires to keep him from carrying out large schemes like his father. He held holiness in scorn, and knew neither mercy nor justice, nor heeded his pledged word. So no soul had grief for him when a comrade's arrow pierced his heart as he was hunting.

THE BLOOD OF KING ALFRED

But when he fell dead in the New Forest, his younger brother Henry I., got himself chosen king, Robert being not yet home from the Crusades. Henry was selfish enough, but he was not a lover of war like William, though skilled enough. For his care for the arts of peace, men called him Beauclerc, the Scholar, and he had wit to see that the king is strong who rules his people with a hand that is just as well as firm. And because he made this his great aim, so that the common folk might love him because he shielded them from oppression, he sent among them righteous judges, and restored the old customs of judgment. Another name given to him was the Lion of Justice. Also, he pleased the English by taking a wife from the old royal house, so that in the veins of his children, and of every king or queen of England after him, ran the blood of Alfred, which runs to this day.

THE MIGHTY CHANGE WITH HENRY II.

When Henry died there was warring between his daughter Matilda, wife of the Count of Anjou, and his nephew, Stephen of Blois, as to which should rule. As for Stephen, who got the upper hand, there is little to say but that he, too, was a stout soldier, though with no skill to rule men.

When Stephen died, Henry II., the son of the Empress Matilda, became king, and there was a mighty change. He was, indeed, not much more than a boy when he began to reign; but al-

ready he knew much of the ways of men, and had learnt how shrewd warriors manage the art of war, being himself very shrewd.

We can picture him with his sturdy figure and red hair and quick, fiery eyes, a man of furious energy, swift in judgment and movement, never resting, never tiring, quick to wrath, losing all self-control in moments of passion, yet not cruel nor unforgiving.

THE MASTERFUL MAN WHOSE HEART WAS BROKEN

This was the very man to set right what had gone wrong. The barons soon learned that they had met their master, and a master well worth serving loyally. Henry knew that a just king is a strong king, and he dealt justice with an even and firm hand.

This was the king who quarrelled so bitterly with the bold archbishop, Thomas à Becket, and cried out in his passion, "Is there none who will rid me of this pestilent priest?" Whereupon certain knights, who hated the archbishop, made haste to Canterbury before the king should know how they were taking him at his word, and they slew Becket foully in the house of God, and made of Henry for evermore a sorrowful man. You may read of Thomas à Becket on another page.

But he did not learn to rule his temper, and his sons were like him, so that they became rebels in his old age, and joined with his enemies in France.

RICHARD WITH THE LION'S HEART

Henry was the first of the Plantagenet kings, who ruled in England for over 300 years. After Henry II., reigned his second son, Richard I., whom men called the Lion-hearted, because he was the boldest knight in all Christendom, and the strongest. Richard had a great skill in the craft of war, and spent most of his time either fighting or quarrelling abroad, so that England got little good of him for all his lion's heart. But of all the kings that ever reigned in England, the worst was Richard's brother John, who was king after him. He had wit enough to be a great general, but was always defeated. He cared for nothing but his own pleasures and the quickest and easiest way of getting what he wanted by any means, however foul. But he was so very evil that he drove almost the whole people to unite against him, and they forced him to set his seal to the Great Charter, which laid it down for ever in England that no king has the right to override the law of the land.

King John died in the midst of a civil war whereof his misdeeds were the cause; and John's son Henry, who was but a boy of nine, was proclaimed king. It was only from this time that it became the law that the king's eldest son should succeed him.

King Henry III. had a very long reign — the longest in the country's history, save George III. and Queen Victoria. And a very troubled reign it was; for the poor man was in no wise fit to be a king.

THE COMING TOGETHER OF THE NATION

He was not, like his father, full of all evil; but he was the kind of man who always manages to do exactly the wrong thing. It was only when his son Edward grew to man's estate that the king, growing old, suffered his wisdom to overrule his own folly.

And yet England got some good out of his reign, for all England was growing more united, and the barons were growing more English. So, when Edward came to the throne, he was the first truly English king since the Norman Conquest, 200 years before, and it was the right ordering of England that he most sought after. King Edward, seeing that if England, Scotland and Wales were all one nation his power would be much greater, conquered Wales, but never conquered Scotland.

Edward desired chiefly that all things should be done lawfully and in order, and was zealous that the laws should be so clear that none might evade them; so that for what he wrought in shaping the law he has been called the greatest of the Plantagenets. And he learnt a great lesson from his father's vanquished foe,

Simon de Montfort, and gave a form to the council of the nation — coming to be called the Parliament — that was but little changed for 500 years and more.

The great King Edward was on his way to smite the Scots, who had found a new and daring leader, when death laid him low. But his son, Edward II., was a prince of a very different sort. The Scots drove the English out from one stronghold after another, while the English king spent his time quarrelling with his barons.

THE KING WHO LOVED PLEASURE

Then, at last, the time came when for very shame Edward had to lead a mighty army into Scotland, hoping to win back what had been lost; but the Scots king knew well that he had no great general to fight against; and the English army was put to utter rout at Bannockburn.

Yet Edward II. went on in his foolish ways, obstinate and pleasure-loving and heedless, until at last a plot was made against him by his wicked wife. He was dethroned and cruelly done to death. His son, the third Edward, lived for fifty years after his father's death, so that his reign was the longest save three in all English history. It is famous for the king's own exploits in battle; for the greater part of his reign was taken up with a war for the French crown, which Edward claimed. But, though Edward and the Black Prince won great fame in the war, Edward was no great ruler like his grandfather; having no great heed to his people's welfare, but rather to his own honour and glory.

THE BOY KING AND THE PEASANTS

In the latter years of his reign, when he himself became worn out long before he was really old, his French subjects rose up against him, so that when he died England held in France even less land than when he came to the throne.

The crown of King Edward passed to his grandson, Richard II., who was but a boy. Now, very soon after there was a rising of the peasantry, because they wished to be set free from the services to their feudal lords, and to have the right to serve whom they would for wages, and to pay money for the lands they occupied and tilled instead of doing service to the owners. Then young Richard showed himself to be a lad of courage, for when the peasants clamoured in arms against him, he rode alone into their midst fearlessly.

But when he was grown up he set his heart on making himself the sole ruler of the country and the barons. He exiled the greatest of the barons and seized their lands, but he made so many enemies by his reckless counsels and his ill-faith that his cousin, Henry of Lancaster, returning from exile, was able to seize the crown.

This Henry IV., the first king of the House of Lancaster, was a usurper, as he had no true right to the throne even if King Richard had forfeited it by his ill-government. He sought the favour of the people, but his reign was troubled and he died broken with disease.

THE HERO KING OF AGINCOURT

Of all English kings, one of the most famous is his son, Henry V., who was a very great warrior. The realm of France in those days was torn with dissensions. Henry knew that he was King of England only because his father was a usurper, so he hesitated the less to declare that, being King of England and heir of Edward III., he had a right to the crown of France. Stories tell how he had been a terrible scapegrace as Prince of Wales, but he had also learned not a little of the arts of war and government. He made war upon France, with little enough justice on his side, yet perhaps with the real belief that he had been appointed to destroy the evil rule that was there. In the first year of the war he won at Agincourt a victory as famous and as wonderful as that of Edward III. at Cressy, and by his valour he won the devotion of his soldiers and of the whole English people, so that he has always ranked as one of the national heroes.

ALFRED THE GREAT RECEIVING THE SURRENDER OF THE DANISH CHIEF GUTHRUM
From the picture by Mr. Herbert A. Bone

But when he died his heir, Henry VI., was only a babe, who grew up to be a harmless, well-meaning shadow, flitting about building colleges while different factions fought for the control of the government. But his cousin, Richard of York, at last laid claim to the throne, which was his by right of descent.

THE WARS THAT BEGAN IN A GARDEN

Out of this claim came what were called the Wars of the Roses — because they began with the plucking of roses as badges in the Temple Gardens in London — and in the wars the nobles took sides according to their own interest. Richard was killed, but his son won a great victory and proclaimed himself king as Edward IV.

Henry was made a prisoner after a time, but it was a long while before Edward sat securely on his throne. He was a wonderfully brilliant soldier, who never lost a battle; but he was so indolent and careless that at one time his enemies all but caught him unarmed, and he had to flee from the country for his life. But when he did exert himself he again struck down his enemies, and then he had no qualms about putting to death not only poor King Henry, but his own brother.

THE MAN WHO RULED BY FEAR

He left his throne to his young son, Edward V.; but his own brother, Richard III., usurped the crown and murdered the young king and his brother in the Tower of London. Richard was able, but, having secured the crown by a crime, he felt that he could only keep it by terror. Trusting no man, he was trusted by none. His friend to-day might be his foe to-morrow; the man he honoured to-day he might send to the block to-morrow. In the grip of his tyranny, men turned their faces to young Henry of Richmond, of the House of Lancaster, to rid the country of the usurper. Richmond came from his exile in Brittany, and Richard fell fighting furiously on Bosworth Field. Henry Tudor of Richmond was crowned on the field.

The person who had the best right to the throne was Elizabeth, daughter of Edward IV., and as soon as Henry was acknowledged king by Parliament, he married her to secure the support of the adherents of the House of York..

Henry did not in the least mind descending to mean tricks to gain his ends, and he succeeded in making himself very wealthy. He was crafty, and when he matched his wits against those of the other crafty kings of the time he generally got the better of the contest. He was not a pleasant person, but he had the welfare of the country at heart.

When his son, Henry VIII., succeeded him, the young monarch found himself secure on his throne, with plenty of money in his treasury. He was an accomplished prince, well-read, skilled in music, and a great athlete; free-handed and generous in his ways.

A STRONG BAD MAN

But behind all this show he was detestably selfish, though part of his selfishness took the shape of ambition, the desire to have the reputation of a great king and the lord of a great nation. He was not far-seeing, but he was a shrewd judge of men's characters, and he had a power of making devoted servants of much abler men than himself.

So he had two Ministers in his reign, Thomas Wolsey and Thomas Cromwell, each of whom served him for many years, taking upon themselves all the blame for whatever the king's Government did that was unpopular. Both of them the king flung to one side the moment they had served his turn. Nearly twenty years after his marriage he wanted to get rid of his wife, so he discovered that it was quite wrong of him ever to have married her, because she had first been married to his brother who had died. He married five more wives, cutting off the heads of two of them. Perhaps they deserved it, but if Henry had been a good man he would certainly never have married those six wives.

The great business of King Henry's reign was the quarrel with Pope Clement VII. When the Pope refused to

undo Henry's first marriage, the king decided that the Pope's authority was never to be recognised any more in England, and that the king was to be ruler over the Church. Then he said the monasteries ought to be destroyed, because the monks were not holy men, as they professed to be, but lived evil lives. What Henry really wanted was to get possession of the great estates that had belonged to them, because he had emptied the treasury.

Henry left a son and two daughters, the children of three of his wives. The son succeeded him as Edward VI. He died six years afterwards, while he was still a boy. He was a very delicate little fellow, and extraordinarily clever. The council which governed during his reign was made up chiefly of men who declared themselves on the side of Protestantism; Edward was brought up a Protestant.

THE PITIFUL MARY AND HER SISTER, ELIZABETH

The Protestant King Edward was followed by the Roman Catholic Queen Mary, the daughter of Henry VIII.'s first wife. Her life and her reign were very sad. She had been harshly treated by her father ever since the time when he resolved to free himself from her mother. During King Edward's reign she had hardly been allowed to practise her own religion. When she became queen she believed it was her duty to restore the Roman Catholic faith, and save her people from following what she believed to be false doctrines.

And so Mary, who showed herself merciful to her personal enemies, showed no mercy to the enemies of her faith; and many Protestant martyrs perished in her reign. She is one of the most pitiful figures in the history of England, because her conscience drove her into a course opposed to her own nature.

Then came the glorious reign of Queen Elizabeth, perhaps the cleverest woman who ever sat upon a throne. In her days the mightiest king in Europe was Philip of Spain, who meant to crush out heresy — that is to say, the Reformation — not only in his own territories of Spain and the Netherlands, but in other countries too. Now, England was on the side of Protestantism in the contest that was going on between the two creeds. Elizabeth was clever enough to know that Philip intended some day to turn against England, when he had done with his Protestant subjects in Holland. But she did not mean England to fight Spain till England was strong enough to be sure of winning; so she spent half her reign in secretly helping Holland, and quietly doing all the damage she could to Spain.

THE WOMAN'S WIT THAT STRUCK DOWN SPAIN

For all that time she was ruling England firmly, and seeing to it that the men through whom she ruled were honest men above all. Like her father, she had a keen eye for a good servant; but, unlike him, she was generally ready to stand by her servants, and consequently no king or queen has ever been more loyally served. She gave her ministers an uncommonly hard time, for she scolded them like any fishwife, and boxed their ears when she chose. Worse than that, she had a trick of disregarding their advice, and giving her ambassadors contradictory orders.

But, no matter how difficult a place she got herself into, by luck or by wit she managed to scramble out of it. After all her waiting, the time came at last when she made up her mind that Spain might be fought with a certainty of victory, and the victory came with the mighty triumph of the English seamen over the Spanish Armada. The greatest blot on her reign was the execution of Mary, Queen of Scots.

JAMES STUART COMES FROM SCOTLAND

She was one of the vainest of women; long after she was fifty she was given to behaving as if she were still a flighty young maiden; and the surest way to her favour was to pay her ridiculous compliments.

When Elizabeth died there were no descendants of Henry VIII., and the next heir to the throne was the King

RULERS OF ENGLAND FOR 1000 YEARS

Alfred, 871

Canute, 1016

Edward Confessor, 1242

Harold, 1066

William I., 1066

William II., 1087

Henry I., 1100

Stephen, 1135

Henry II., 1154

Richard I., 1189

John, 1199

Henry III., 1216

Edward I., 1272

Edward II., 1307

Edward III., 1327

Richard II., 1377

Henry IV., 1399

Henry V., 1413

Henry VI., 1422

Edward IV., 1461

Edward V., 1483

Portraits of the Kings of England for a thousand years. One or two of the less important kings who reigned between Alfred the Great and William the Conqueror are omitted, as no portraits of them exist.

FROM KING ALFRED TO GEORGE THE FIFTH

Richard III., 1483

Henry VII., 1485

Henry VIII., 1509

Edward VI., 1547

Mary, 1553

Elizabeth, 1558

James I., 1603

Charles I., 1625

Cromwell, 1653

Charles II., 1660

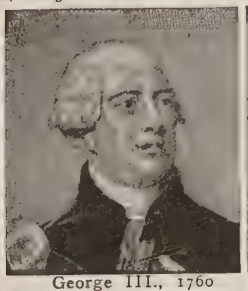
James II., 1685

William & Mary, 1689

Anne, 1702

George I., 1714

George II., 1727


George III., 1760

George IV., 1820

William IV., 1830

Victoria, 1837

Edward VII., 1901

George V., 1910

The date after each king's name is the year in which he began to reign, and the year in which his reign ended is the date of the next king's accession; thus William the Conqueror reigned from 1066 to 1087.

of Scots, the grandson of the grandson of Henry VII., whose eldest daughter had married James IV. of Scotland. So now James Stuart came from Scotland to be King of England and Scotland too. The shrewd King of France described him by saying that he was "the wisest fool in Christendom," by which he meant that King James had a vast deal of learning, but was so in love with his own cunning that he was always overreaching himself.

A COWARDLY KING WHO SOWED DISASTER

And on the top of that it is to be feared that he was very much a coward; but the worst thing about him was that he let himself be controlled by favourites who took his fancy, but were utterly unfit to be trusted. He thought much of the kingly office and the majesty of kingship, and the value of what he was pleased to call kingcraft; but the office sat absurdly upon him and his kingcraft did bad service to the Crown. Not that it brought disaster upon him, but he sowed the seed of which his son, Charles I., was to reap the fruit.

A very great contrast to his father was Charles I. From every picture he looks out upon us with a mournful dignity, unlike the shambling, undignified, grotesque King James. Nevertheless, he had many of his father's qualities: the same belief in the divine right of kings to govern at their will and pleasure, the same obstinacy, the same inability to choose wise counsellors, the same confidence in his own cunning. But James was crafty by nature, and now and then his craft stood him in good stead. Charles was not in the least crafty by nature, and his attempts to be cunning always failed.

THE GOOD MAN WHO MADE A BAD KING

In private life Charles was as blameless a man as the strictest of Puritans. But many qualities are needed to make a good king which are not often brought to the test in private life. Charles was a bad king. He thought kings were not bound to keep faith and hold to their pledged word; and that was the gravest fault in his character. It was the fault which brought him to his doom; for it was only when people had become thoroughly convinced that he would hold to no bargain and keep no promise that they came to think there could be no peace or security under him.

The root of all King Charles's troubles was his belief that because he was king he must be in the right whatever he did; that if he could not get his way honestly, it was right for him to get it dishonestly. And, unhappily, what he wanted was generally just what most of his subjects did not want; so that the king, who imagined that the will of the people was of no account, forced them into rebellion, and when they were victorious he tried to win over one group or another to his side by making promises. So it was that the chiefs of the army were brought to think that there was nothing for it but to cut off the king's head and set up a republic.

KING OLIVER, WHO REFUSED THE CROWN

Then for eleven years the Government of England was called a Commonwealth, having no crowned king. Nevertheless, when three years had passed, the great commander of the army, Oliver Cromwell, had really more power than the kings of the past, because the army put its trust in him and was ready to compel all others to obey his will. And so Oliver Cromwell was made Lord Protector of the Realm of England, being a king just as much as if he had had the crown.

Now, this reign of Oliver Cromwell, which lasted for five years, is the one period in English history when the land was ruled by military force. Cromwell's rule was strong; he maintained law and justice throughout the land — or at least what he honestly took to be justice; and he made England feared by foreign nations as she never had been feared before. He was a very great ruler, but he was obeyed simply because he could compel obedience. And therefore, though the people of England endured his rule, they would not endure anything of the kind

from any lesser man than Oliver himself. When he died they soon made up their minds to restore the son of Charles I. to the throne.

King Charles II. was the very opposite of the great Puritan Protector. He was so lively, witty, and good-natured that he was always popular; but he was selfish and cunning, and had no ambition to be a great king. He cared for little except to enjoy himself, but he tried to work out plans of his own to make the king independent of Parliament.

The Royal Traitor

In fact, to gain his own ends, King Charles sold himself and his country to the King of France, pledging himself to guide England so far as he dared, and so far as he could, without being found out, in accordance with the French king's wishes. He was so clever that he tricked statesmen and Parliaments into doing what he wished. Before the end of his reign he got his price from the French king, and was able to set about building the royal power again in England. But he had not gone very far when he died, and was succeeded by his brother, James II.

James was much more like his father than his brother. He was not clever enough, and perhaps he was too honest, to conceal his design of making himself an absolute king, and of reinstating the Roman Catholic religion in England. He tried to punish with a high hand those who opposed his will.

Driven from the Throne

When the people saw that he was determined to go his own way and force his will upon them, leading statesmen from every party invited his son-in-law, William of Orange, the head of the Dutch Republic, to come over with his wife and force King James either to come to terms or to surrender the crown. James found himself without supporters and fled from the country. The crown was offered to William and Mary, and they accepted it.

William III. was made king partly because his mother was a Stuart, and he stood next in succession to the throne after the offspring of King James, but chiefly because he was Mary's husband, and Mary was King James's eldest child. Although he was a foreigner, caring a great deal more about his own country than about England, he proved an excellent king.

William and Mary died leaving no children, and Mary's sister, Anne, came to the throne. Anne's reign is famous chiefly for two things. One was the great war in which the Duke of Marlborough got so much glory for England by the victories he won, of which the greatest was Blenheim. The other was the treaty by which England and Scotland became one nation with one Parliament, instead of being two nations bound together only by the accident which gave both the same king.

Anne was not a great figure, and the glories of her reign belong to the statesmen and soldiers, and to the group of writers from whom her reign is called the Augustan Age of English literature, because the great age of Roman literature was that of the Emperor Augustus.

The Coming of the Georges

Great Britain would not have Anne's brother, a Roman Catholic Stuart prince, for king. The country was determined to have a king who was both a Protestant and of the royal blood of England and Scotland. By that rule, the Protestant nearest in succession was George, the Elector of Hanover, in Germany. So German George, the great-grandson of James I., became King of England when Queen Anne died.

He was more than fifty years old, did not understand the English language, and cared more about Hanover than about England. He was king merely because there was no one else to put on the throne — a sort of lay-figure, who had to do as he was told. He left the country to govern itself through Parliament.

His son, George II., learned a good deal about England before he came to the throne, though his youth had been spent in Hanover. He was not in the least English, and he would have liked

to make use of his British kingdom for the benefit of Hanover, but was wise enough to give way to the Parliament. Also, George II. was a man of his word. At the end of his reign he found himself obliged to accept as chief minister a man whom he disliked extremely, William Pitt; but he worked with him loyally, and did his best to help the great minister in carrying out his plans.

In some ways King George did not know how a gentleman ought to behave, but many much worse men have sat on thrones than George II.

Farmer George, who lost America

The third George, a very young man when he came to the throne, was born and bred a Briton. In private life he was a worthy, simple-minded person, whom people called Farmer George. He had pluck, and was prepared to do what he imagined to be his duty at all costs. But, unfortunately, he was shockingly obstinate, while he thought it was part of his duty to make people go his way. He was just clever enough, however, to do it not by fighting against Parliament, but by working hard till his friends in Parliament were in a majority, so that at last the king again became a real ruler.

The first use he made of his power was to force the American colonies into a rebellion, the result of which was that the United States of America separated themselves from the British Empire. His obstinacy did another great piece of harm, when he refused to allow what was called Catholic emancipation, although the Irish had agreed to give up their Parliament on the understanding that Catholic emancipation would be granted.

The king no man could honour

However, King George did a good thing for his country, and indeed for the world, when he gave his confidence to the second William Pitt, and supported him with all his might in resisting Napoleon. George III. was king for sixty years; but the last years of his life were very sad. His brain gave way, and he became almost deaf and blind; and his sons were a great grief to him.

George IV. was known as the First Gentleman in Europe, a title he did not in the least deserve. No one could possibly call him a good man, and the best thing to be said for him as a king is that he did not interfere enough with his ministers to do very great harm. But he made himself so contemptible in many ways that there were probably more people in England in his reign than at any other time who would have liked to see the monarchy abolished.

We need say little of George's brother, William IV., who succeeded him; an honest and well-meaning man like his father, who was proud of being a sailor, and, though he was obstinate, was not too obstinate to follow the advice of men wiser than himself.

When he died, after a reign of seven years, he was succeeded by his young niece, the great Queen Victoria, who reigned for almost sixty-four years, the longest reign in England's history. Throughout her long life she worked very hard, and in her later years all Europe looked up to her as the wisest of living sovereigns. As a woman her life was blameless, an example to all her subjects.

The rulers of our own time

Queen Victoria died in 1901, and was succeeded by King Edward VII., whose death in 1910 plunged the British Empire into mourning. The British people are not in the habit of giving extra titles like the "great" and the "good" to their kings; but to Edward VII. a title of high honour has been given, and men have called him Edward the Peacemaker. Shrewd and wise and genial, all men learned to trust his counsel, and he had the skill to turn folk from ill-feeling and suspicion to friendliness and confidence.

When Edward the Peacemaker passed away, his son George became king. His people do not yet know him as they knew his father; for King Edward had played much of the king's own part while his mother still reigned.

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WHY THE WINDS BLOW

THE GALES THAT SWEEP ACROSS THE SEA

When we look at a weather-vane we can tell from what direction the wind is blowing. The revolving part of a weather-vane has much more surface at one side than it has at the other and the side with the bigger surface is blown away from the wind. Thus the smaller part is at the side from which the wind is coming. Arms are generally fixed to the stem of a weather-vane, and at the end of these arms are the letters N., S., E., W., indicating the four directions of north, south, east, and west. If the arrow of the vane or the head of the weather-cock points north, the wind is blowing from that direction.

It is easy enough to read the weather-vane, and it will perhaps suggest a number of other questions.

Why, for instance, does the wind blow at all? Why does it not always remain still, as it does sometimes in summer? Why does it sometimes blow gently, sometimes strongly, and sometimes rage in a hurricane? Why does it blow sometimes from the north, sometimes from the south, and sometimes from the east or west? Finally, why do some kinds of wind bring some kinds of weather, and other kinds of wind bring other kinds of weather?

The science of wind and weather is called *meteorology*. The word comes from two Greek words meaning "to raise beyond." The word *meteor* now means only a fragment from another world that comes flying into our atmosphere. But formerly meteor had a wider meaning. Anything connected with the atmosphere was called a meteor, and so the science of the weather became known as meteorology.

Now we come back to the first question: Why does the wind blow? For the same reason that smoke comes out of a chimney. That is a curious answer, but it is correct. The real cause of the wind is that air expands and rises as it becomes hotter. If we take an empty bottle, stop its mouth with a cork, and place it in front of the fire, either the cork will pop out or the bottle will burst. The air inside the bottle wants more room.

Now, the sun shines upon this world and heats the air in certain parts. The warmed air, being lighter than cold air, rises; and cold

air, being heavier than warm air, rushes in to fill up the place which the warmer air occupied before it began to rise. That is the reason why the wind blows, given as simply as it can be given.

Generally, a breeze from the sea begins to blow on to the land a few hours after the sun has risen. Again let us ask — why? Land becomes warmer than water under the heat of the sun, so the air on the land rises, and the cooler air from the sea blows in to take its place, only to be warmed in its turn, and to allow more cool air to blow in from the sea. When the sun has set, the land gets cool more quickly than the sea, so that the air above the land is denser, or heavier, than the air above the sea, and the cooler land air blows out to sea to replace the warmer sea air that is rising because it is warmer.

WHY ARE SOME WINDS WARM AND SOME COLD?

Winds become like the surface of the earth over which they travel. A wind blowing over a hot, dry desert becomes hot and dry; a wind blowing over ice-fields and snow-clad mountain-tops becomes piercingly cold; a wind blowing from, or over, the sea is likely to bring rain.

Whatever wind may blow, it has its cause in the inequality of temperature and heaviness in the atmosphere. Nature strives for equality, and warm breezes and cold blasts are Nature's way of equalising matters.

WHAT ARE THE TRADE WINDS?

The trade winds are so called because, in the days before steamships, these winds were really the "drivers" of the world's trade, being the only power which enabled the ships to travel along the great highways of the ocean. The trade winds are winds that are always blowing from the Poles towards the Equator. But in going towards the Equator the trade wind that comes from the Arctic regions does not blow directly south, and the trade wind that blows from the Antarctic regions does not blow directly north.

The reasons for this are interesting. The earth is always revolving, carrying the air along with it. Thus the air at the Poles is revolving with the earth and at about the same rate as the parts of the earth near the Poles are revolving. As the winds proceed towards the Equator, they go always into parts of the world that move faster than the parts near the Poles, just as in top-spinning the widest part of the top moves more quickly than a spot nearer the centre.

The winds that have come from nearer the Poles do not at once acquire the faster speed, so that the earth beneath them revolves faster than they do, and therefore they come to be not north and south winds, but northeast and southeast winds. The trade winds are most pronounced in the Pacific and Atlantic Oceans, because there is almost no land surface to modify them in their passage.

WHAT IS A WHIRLWIND?

In some parts of our country the whirlwind or cyclone is much dreaded. The whirlwind is caused by winds coming from opposite directions at the same time. When such winds meet, they make a circular motion with great violence, and, being pressed on by more wind coming behind, may be driven upwards with such force that at sea they may lift a column of water with them, thereby making a waterspout.

At times terrible gales sweep the sea. Before the days of steamships, sailors used to look forward with dread to the autumnal gales. Often they would battle with the elements for days together.

The sails would be torn to shreds by the fury of the wind. The mighty, foaming seas would charge upon the ship like an invading host, throwing themselves with terrific force upon the decks, and sometimes carrying away the masts. The gales are not such a danger to shipping as they once were, for nowadays steamships are independent of the wind for their motive power, and so they plough their way doggedly through the boisterous sea until they reach the desired port.

HOW THE COUNTRIES GOT THEIR NAMES

A COMICALLY stupid person had been having his first lesson in astronomy, and at the end of it he scratched his head in wonder and amazement. "What beats me," he said, "is to know how men first learned the names of all the stars."

Of course, the names by which we know the stars are only the names by which men have agreed to call them. When a builder makes a new street, he has to give it a name; and when an astronomer discovers a star he has to call it by some name by which it shall be known. Continents and countries, towns and counties, oceans, seas, rivers, and lakes came by their names in the same way.

THE NAMES OF THE CONTINENTS

Some of the existing names are very old, and in those old names we often find meanings which tell us what old-time people thought of the lands and waters which they named. A great number of names of places mentioned in the Bible and in ancient history have died out, and their places have been taken by new names. It is interesting to glance at some of the names now in existence and to find their hidden meanings. First let us take the continents, the five great land systems into which the earth is divided.

AFRICA. The name of Africa, "The Dark Continent," comes from a Phœnician word, *afri,* meaning a black man, or else a wanderer.

AMERICA. When Columbus discovered America, the continent had no name. He thought that he had reached a western part of India, so he called the islands in the Caribbean Sea the West Indies. The people he called Indians, and to this day the natives of America are called Indians. The name America came from Amerigo Vespucci, a traveller from Florence, who visited the country after Columbus and wrote a description of it.

ASIA. The oldest continent known to man is Asia. It is supposed that man first made his appearance on the earth in Asia, and spread from there into the other parts of the world. "Asia" comes from the Sanskrit word *Ushas,* which means "land of the dawn," a very good name for what was probably the birthplace of the human race.

AUSTRALASIA. In this name we include Australia, New Zealand, Tasmania, and Fiji, and other islands. Australia was called New Holland by the Dutch, who discovered it in 1606. Austral means "south," so Australasia means really Southern Asia, but Australasia is more than that.

EUROPE. The name of this continent is derived from Greek words which mean "the broad face of the earth," or else from a Hebrew word meaning "the land of the setting sun." The ancient people of the East knew very little of Europe, but they knew that the sun set in the west, and so might have called it the land where the sun set.

THE NAMES OF COUNTRIES

The names of most countries, new and old, contain a hidden story showing how people regarded the lands or their inhabitants at the time that the names were given. Let us glance at some of them.

ABYSSINIA. The syllable *ia* at the end of the name of a country means land or territory. Therefore, Abyssinia means the land of the Abassins, or "mixed races."

ALGIERS is a newer spelling of the Arabic name *Al Jezair,* which means "the peninsula."

ARABIA. Here we have the *ia,* which tells us that Arab-ia is the territory of the Arabs, or men of the desert.

AUSTRIA. This name is a modern form of the big word *Oesterreich.* It meant Eastern Kingdom, and the country was so called to distinguish it from Charlemagne's empire in Western Europe.

BURMA. This is the English form of the word. The native name is written Mram-ma or Mianma, but it is pronounced Bam-mâ. The word means "those who are strong," and

was, no doubt, formerly a title of a warrior caste.

CHILE. When the Spaniards arrived in the South American country which we now call Chile, they heard the natives give this name, which means snow, to a part of the country, and so they wrongly applied the name to the whole 250,000 square miles.

CHINA. This is a name never heard in China, where various names are given by the people to the territories which make up their empire. We used to call China *Cathay,* but "China" is the name now used by English-speaking people. The word is believed to have come from *Tsina,* "the land of Tsin," the ruler who built the Great Wall of China.

ENGLAND. The name really means "land of the Angles" or "Engles," the people who came over from Germany and conquered the country in the fifth century. England is still called *Angleterre,* which means *Angle land,* by the French. The Italians call the country *Inghilterra,* and the Spaniards call it *Inglaterra.*

FRANCE is the modern name of the country which was formerly called Gaul. The Gauls were the original possessors of the land, but the Franks, moving out of the German province of Franconia, conquered the land, and called it France or *Frankreich.*

GERMANY was formerly called *Inonges,* but the Romans borrowed a word from the Gauls meaning neighbours, and gave it a Roman form — *Germanus.*

HOLLAND is a modern spelling of *Ollant,* the Danish name, meaning "marshy ground or else woodland."

INDIA means the country through which the River Indus runs.

IRELAND is "the land of the Irish," but the old name was differently spelt.

ITALY is the name given to the country once ruled over by a king named Italus.

JAPAN is a word never heard in the land itself. The Japanese name for their country is Niphon or Nippon, which means "land of the rising sun." Our word, Japan, is the result of a mistake of early travellers to the East.

MONTENEGRO means *black mountain,* which is a noticeable feature in this mountainous country.

NEW ZEALAND. Tasman, the Dutch navigator, discovered New Zealand, and thought the islands so much like the Zealand at home in Holland that he called it the *New* Zealand.

PALESTINE means *the land of strangers,* the word coming from another word meaning "to wander." The country is called also the Holy Land, Canaan, and the Land of Israel.

PERSIA. The name the Persians give to their country is *Iran.* The name Persia was given to it as meaning *the land of the Parsas,* wild people so called, whose name really meant "the tigers."

PORTUGAL is a name which comes from *Portus Cale.* That was the name given by the Romans to the ancient city of Oporto. It meant "the port Cale," and from it the name of the whole country has sprung.

RUSSIA takes its name from the Russ, a tribe by which the land was seized long ago.

SCOTLAND was called Caledonia, it being then the land of the Caels or Gaels. In the third century, however, the Scots, a tribe from the north of Ireland, overran the land, which came in time to take their name — Scotland, or "land of the Scots."

SPAIN. This is the English form of the Spanish name of the country, *Hispania,* or España. The name comes from an old-time word, "Span," meaning rabbit. The Carthaginians found the country overrun by these animals, and called the land after them.

WALES was formerly named Cambria, because people called the Cymri inhabited it. These people were never conquered by the Romans, and still kept together in Anglo-Saxon times, so that they became known to the English as Welsh, which means foreigners. Their country was called Wales, "the land of foreigners."

From all this we see that in the old times the names given to places had familiar meanings. Some of them are beautiful and poetic, particularly in the United States.

IS IMPURE AIR LIGHTER THAN PURE AIR?

We are apt to be rather misled on this point, for other things affect the weight of air besides the kind of stuff that is in it; and one of the most important of these things is its temperature. It is true that in a room or church or theatre the impure air is lighter than the pure air, and therefore it ascends. But though this is true, it is not true that impure air is lighter than pure air. The impure air made by human beings or animals, or by fires, gas-jets, lamps, or candles, is hot because it is made by the process of burning, whether inside our bodies or outside them, and that process produces heat. Now, the hotter the air is, the lighter it is.

But if we were to wait until this impure air had cooled we should find that the impure part of it was heavier than the air. The most important gas in impure air is carbonic acid gas, and this is heavier than ordinary air of the same temperature. Thus, in caves and mines where carbonic acid gas is formed, it always tends to lie as low as possible. This is a fact which every miner knows; and it is a very interesting experiment to lower a lamp down an old mine, or a well, and find that when it has dropped a certain distance it goes out because it has reached the level of the carbonic acid.

DOES CHANGE GO ON IN OTHER WORLDS?

We know from our study of the surface of the earth that in the course of long ages it has changed very much. But men have been inclined to suppose that the skies do not show any change except in the position of their inhabitants. However, when we study the sun and the planets by means of powerful telescopes, we find that all sorts of slow changes are going on in the other heavenly bodies. Perhaps sunspots need not be counted, as they come and go, and no one can say that there is any evidence of any changes in the sun going on steadily in one direction. But there is no doubt as to changes in at least two planets, Jupiter and Mars.

On the surface of Jupiter, the giant planet, there is a curious marking called the great red spot; and during the years that this has been watched it has certainly shown changes in shape and size and colour. They are, indeed, much quicker than the changes on the earth that happen at the present time; but the surface of Jupiter is much hotter than the surface of the earth, which has mostly become set and rigid, while on Jupiter the surface is more fluid, and, indeed, so hot that it probably gives out some light of its own still. As for Mars, it shows many changes both in large features and in small. Considerable areas of Mars, which must once have been ocean-beds, are now certainly dry.

WHY DOES YEAST MAKE BREAD RISE AND BISCUITS BUBBLE?

Yeast is a simple kind of living plant which produces a substance called a ferment, that has the power of causing certain chemical changes in sugar. When yeast is used to make bread, the results all follow from the fermentation of sugar. Sugar is an extremely complicated substance, containing three kinds of atoms — carbon, hydrogen, and oxygen. When it is fermented the sugar is partly burnt — that is to say, the ferment takes a certain amount of oxygen from the air and adds it to the sugar, which is decomposed and turned into something else. If anything made of carbon, hydrogen, and oxygen is completely burnt, the result will be carbonic acid from the burning of the carbon, and water from the burning of the hydrogen. In this case the burning is not complete, but still a good deal of carbonic acid gas is formed, and this makes the bubbles which form in the dough, and cause it to rise. A good deal of it escapes into the air, but much is caught, and so the bread is made.

The other thing which results from the fermentation of the sugar is alcohol, which is also a compound, though a much simpler one, of carbon and hydrogen and oxygen. For this reason the process we have been describing is usually known as the alcoholic fermentation of sugar. Practically the whole of the alcohol flies away into the air and is lost.

WHAT IS THE DIFFERENCE BETWEEN A FRUIT AND A VEGETABLE?

In ordinary talk we usually make a distinction between fruit and vegetables, but most people could scarcely say what the difference really is. All living creatures are divided into two great classes, animal and vegetable, and every kind of fruit belongs to the class of vegetables.

Still, though an apple or a strawberry is just as much a vegetable as a cabbage or a potato, we can find a distinction between them. Indeed, students of plants use the word fruit in a definite way. Many kinds of plants do not produce a fruit at all, but all the higher plants do, even including the greatest trees. The fruit of a plant is that part of it which contains the seed. Indeed, the fruit and the plant exist in order to produce the seed; when we study the history of the fruit we find that it always comes from the flower. The purpose of the flower is to form the seed; and then the flower disappears and we have, instead, the fruit, which holds the seed for its destiny.

Thus some of the things that we usually call "vegetables," such as tomatoes and cucumbers, are fruits in the proper sense of the word, because they bear the seed.

COULD A MACHINE GO ON FOR EVER?

This is a new way of asking the old question whether men can find what is called "perpetual motion," though that phrase is not good to express what is meant. The whole universe is a perpetual-motion machine. Formerly many men thought they saw signs that the universe is running down, like a clock that was once wound up, and that in time all motion will end. But men see now that when motion disappears it has been turned into something else, and that the motion can be got out of it again. Therefore we believe that all motion is perpetual, for motion is a kind of power and no power is ever lost, though it may be changed.

When we say that perpetual motion is impossible, we mean something very different. We mean that we cannot get work from power and still have the power which did the work for us. It is never possible to get something for nothing. If a spring is to drive a clock it must get less tight, and then it will need winding again. The power put into it when the clock was wound has gone in the motion of the clock, and perpetual motion is impossible, in the sense that we cannot spend power of any kind and at the same time keep it.

WHAT IS GREEDINESS?

People often say that children are greedy, and should be ashamed of themselves. Now, children, and grown-up people too, may often be very hungry, and then will eat a great deal and perhaps very quickly. The question is whether there is any difference between being greedy and being very hungry. There is a difference, and a very real one. When we see anyone eating dry bread, however much or ravenously he eats, we do not say that he is greedy, but we simply say that he must have been starved, and is very hungry.

We say that a child is greedy when he wants to go on eating, not because he is hungry, but because he likes the taste of highly flavoured food like cake and rich Christmas pudding and candy. This is not hunger at all, for a child or a grown-up person may greedily eat far too much of such things just after a good meal.

This is really the craving of the nerves of taste, and is an utterly different thing from hunger. We are right to call it greed, and to regard it as unworthy. Some grown-up people are often just as greedy as children, though usually not so much for sweets as for other highly flavoured foods.

WHAT WOULD HAPPEN TO A PENNY IF IT GOT BEYOND THE PULL OF THE EARTH?

The law of gravitation states that every portion of matter throughout the universe attracts every other portion of matter. Therefore, however far a penny were to go in any direction, it could never be beyond "the pull of gravitation." Wherever it was,

it would be attracting, and attracted by, all other matter in the universe, including the matter that forms the earth. But a penny might be imagined as going so far that the force of the earth's gravitation might not succeed in pulling it back, because the attraction of some other body was more powerful. If there were no other heavenly bodies, gravitation would, of course, bring the penny back to the earth.

Where the penny would go would depend on its direction. It might be drawn into the moon. If it passed farther away it might be drawn into the sun, or into Jupiter. But sooner or later it would almost certainly pass near some large heavenly body, and be drawn into it. Its actual fate would depend on the force with which it left the earth, for if this were just right, the penny might travel round the earth as the moon does, or form a new planet revolving round the sun.

WHY DOES THE COLOUR RUSH FROM THE FACE WHEN WE ARE FRIGHTENED?

Plainly the reason why the face of a frightened person is likely to turn pale must be found in the circulation of the blood, which usually gives the face its colour. If at such a moment we had our finger on the large artery which beats at the wrist, and is generally called the pulse, we should notice that the beats had suddenly become few and irregular. It is the heart that is beating too slowly, not strongly enough to force the blood along the arteries to the skin.

We may wonder how fear can actually reach the heart and affect its action. The answer is, that there runs down the neck, on each side, from the brain to the heart, a remarkable nerve, called the *vagus,* or wanderer, because it goes to so many distant places, and one of its duties is to run to the heart and carry orders from the brain. When we turn pale from fear, what has happened is that the brain has sent powerful orders through the vagus nerve to the heart, nearly making it stop beating altogether.

WHAT MAKES PEOPLE FAINT?

When a person who has been standing up suddenly turns pale, sways, and falls to the ground, it is plain that something has happened to stop the working of his brain. Perhaps we forget that our brain must be working all the time, and that if it stopped for a moment we should certainly topple over. That is what happens when a person faints; the brain-centres which control the balance of the body, and those which give orders to the muscles of the legs, cease to act.

We can guess the reason of this if we remember that the face of a fainting person is always pale. This gives us the hint that the supply of blood to the head is defective. The heart is not sending enough blood upwards, and so not only the face but the brain becomes pale and ceases to work. All nerve-cells require a continuous supply of blood, or they will cease to work. There is no other kind of cell that so quickly exhausts its nourishment.

We may go farther back and ask why the heart is not sending enough blood to the head. Many reasons are possible. Too much blood, for instance, may be going elsewhere, the heart may be weak or poisoned by our breathing foul air, or the blood may be too poor in quality to do its work properly.

WHERE DOES OUR WARMTH COME FROM?

As we talk of warm clothing we might think that our warmth came from our clothes; but, if we think a little, we shall agree that our clothes, at most, can only keep in the warmth, which comes from somewhere else. Sometimes, it is true, our bodies get warmth from something outside, from the sun, or a fire, or in a hot bath. But we should be very badly off if we had nothing else to depend on for keeping up the heat of our bodies.

We make our warmth ourselves, and it all comes from our food. Almost everything we need as food can be burnt if it is dried, and, though it is certainly not dried in the body, it can be burnt there. The foods which burn

best outside the body are those which furnish most of our warmth inside it. Such foods are fats and oils, sugar and starch. If necessary, our warmth can be got from the burning, inside the body, of such foods as meat and white of egg; but this is a very wasteful way of getting it, and, indeed, the reason why we take such foods as fat and sugar is to save the others and to supply the warmth of the body in the safest way.

Of course, all burning requires oxygen, and half the credit of producing our warmth belongs to the air we breathe.

WHAT MAKES THE NEW ELECTRIC AMPS SO BRIGHT?

During the last few years the small electric lamps used in houses have become much brighter without costing more to use. This is because a new kind of material has been employed in making them. In all incandescent electric lamps, the principle is to send an electric current along a very thin wire which is kept away from the air. The wire is so thin that it offers great resistance to the flow of the electricity, much of which is turned into heat, and makes the wire glow. If the wire were exposed to air it would quickly burn away, but the lamp is carefully made so as to contain practically no air. If the glass is broken the wire burns and snaps in a moment.

The brightness of the light depends largely upon the particular material of which the wire is made. The feature of the new lamps, now so much used, is that, instead of having a carbon wire, they have a wire made of one or other of three rare metals, named *osmium, tantalum,* and *tungsten.* The last appears most satisfactory, but the wires are very fragile and often break. This difficulty will, no doubt, be overcome.

ARE HIGH HEELS HARMFUL?

No doubt many people wear high heels to their boots and shoes without much harm. The human foot is beautifully made for its purpose. It has a wonderful arch, which is elastic, and can give a little, and then rebound when pressure is placed upon it. This gives the spring and grace to the walk of people whose feet are in good order. But when people wear high heels they alter the line down which the weight of the body passes through the foot to the ground. Instead of passing down behind the arch of the foot, it passes through that arch, so that people who wear high heels cannot walk naturally, and tire of walking much sooner than they otherwise would.

It is believed that, in some cases, people may hurt their brain and nerves by wearing high heels, for every step means much more of a jar to the body than if the shock were taken up by the spring of the foot. Then, again, people who wear high heels, and throw the weight of the body too far forward along the foot, are likely to have corns and ingrowing toe-nails, and to get the joints of some of the toes made very stiff.

DOES A FISH DRINK?

If any living thing is completely dried, it either dies or else it stops living until it get water again. All living things must drink in one way or another. We know, also, that the water taken in is quickly spoiled, and a fresh supply must be had; a man may go without food for forty days, but he cannot go without water for ten.

Fishes drink, and fishes that live in salt water must drink salt water. But we must not suppose that fishes are drinking when we watch them in an aquarium and they look almost as if they were gulping the water. Fishes require not only to drink but also to breathe, and as they live under water they must breathe by means of the oxygen which is dissolved in the water in which they live.

When we watch them they are breathing by passing water through their gills, which serve them for lungs. The water that passes through their gills yields up to their blood the oxygen they want, but this water is not drunk. When a fish drinks it takes water in by its mouth as we do.

WHAT DOES SOWING WILD OATS MEAN?

In the North, the Danes call the heavy vapours which steam from the earth just before the season of vegetation Loki's Wild Oats; when the fine weather comes they say: "Loki has sown his wild oats." Loki is the evil being of the North.

We might ask ourselves if this is the origin of the phrase about a foolish and extravagant young man "sowing his wild oats." Perhaps it is; but there is something very interesting to be learned about real wild oats. It is said that if we take a head of these wild oats in a moistened state, and lay it carefully on a table, the next morning we shall find that it has moved some distance away. It is like a rolling stone.

The spike of these oats is exceedingly hard, and does not "give," like the ordinary spike of oats and barley; and so it comes about that the weight of the ears overbalances these sharp-pointed spikes, and the head of grain goes tumbling and rolling over and over, like a stupid young man who cannot settle down to good steady work.

DO OUR EYES MAGNIFY?

The real meaning of the word magnify is to make bigger, and if we remember this, we must see at once that our eyes do not magnify. When we look up and see the sun or moon or a star, we are looking at a thing so huge that our bodies are nothing at all compared with it, and the image of that thing upon the curtain at the back of our eyes is tiny compared with our bodies.

If we think of an eye, and the size of it, and then think of the fullest possible extent of the curtain at the back of it, we shall understand that, of course, our eyes do not magnify. A thing magnifies when it makes the image of an object bigger than that object itself. A microscope does that. It may take a thing so tiny that our eyes unaided cannot see it, and yet throw on our eyes an image as large as that thrown by the sun when we look up into the sky. In such a case it is not our eyes which have done the magnifying.

Many insects have eyes which are of a quite different pattern from our eyes, and which look as if they must really magnify. If they are to do so, they must be used as a microscope is, with the lens — whether a piece of a glass or a part of a living eye — extremely close to the object that is to be looked at. If we use our own eyes for objects placed so near as that, we cannot see anything at all, for our eyes are not made for that kind of vision, but are really meant for use at considerable distances. That is the use which tires them least.

WHAT ARE SUN-SPOTS?

Sun-spots were first seen by Galileo, in 1609, over 300 years ago. These dark spots have now been examined not only by huge telescopes, but also by having the light from them studied separately in other ways. An American astronomer has found recently what sun-spots are.

They are a sort of magnetic storm in the gases that make the atmosphere of the sun. Those in half of the sun always twist in the opposite direction from those in the other half — as is the case also with movements of the air upon the earth.

The light from sun-spots, when examined, is found to have been affected by a special kind of force called magnetism; and that is one reason why we know that sun-spots are really a sort of magnetic storm of a special kind in the sun's atmosphere.

Magnets on the earth are affected by sun-spots; and it may be that there is also a close connection between sun-spots and our weather — or, perhaps, not so much the weather as it is from day to day, as the climate over several years. We know that sun-spots regularly increase and decrease in number every eleven years.

But we must not say that the sun-spots move the magnetic needles on the earth, or change the weather. Whatever is the cause of sun-spots — perhaps something not in the sun at all — causes at the same time sun-spots on the sun and magnetic disturbances on the earth.

WHY THINGS ARE DONE

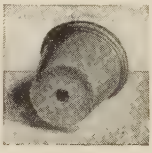
WHY A SHARK'S TAIL IS TIED TO A SHIP'S MAST

THE sailing ships that come into our docks and harbours sometimes have what looks like a large piece of dried leather tied

or nailed to the mast or bowsprit. This is really a shark's tail, and has been fastened in position by the ship's crew, who believe that as a result they will have a safe and pleasant voyage. Seamen, especially foreigners, are very superstitious, and they have a particular dread and hatred of sharks; in fact, if they catch a shark, as they sometimes do by means of a piece of pork on the end of a rope, they are very cruel to it. The shark is, of course, a very necessary creature, and acts as a great scavenger of the seas. The tail of a shark fastened to the ship's mast in the manner shown is foolishly supposed to bring good luck to the vessel.

WHY A FLOWER-POT HAS A HOLE

THERE may be some boys and girls who do not know why a flower-pot always has a hole at the bottom. It is to allow any excess of water that may be poured in at the top or falls upon the mould as rain to pass out at the bottom of the pot, instead of accumulating there and transforming the mould in which the plant is growing into a mass of mud. If there were no hole for the water to pass away by, the plant would soon be killed by the accumulation of stagnant water at the bottom of the pot. It is because of the hole that we must always stand flower-pots in saucers when they are kept indoors; otherwise the water passing out of the pot would run upon the table or window-sill and make a great mess.



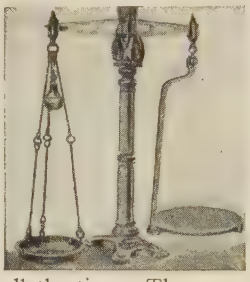
WHY A RAILROAD HAS LITTLE WHITE POSTS

ALL along by the side of some railways outside the big cities there are little posts about 2 feet high, painted white, and bearing the figures, ¼, ½, ¾. These refer to distances, and mean that one post is a quarter of a mile, or half a mile, or three-quarters from the last mile-post. Every fourth post has a whole number on, such as 1, 2, 3, 17, 100, and this refers to the distance of that particular post from the terminus. These posts are placed all along the line for the use of engineers, who, by watching them, are able to regulate the speed of their engines.

If we are in a train, and are anxious to know the speed at which we are travelling, it is possible for us to discover it by watching the posts and seeing by our watch how long we take to pass four of the white posts. To do this makes quite an interesting occupation, and if we are alone and have nothing to read, watching the little white posts and discovering at what rate we are travelling helps to pass the time.

WHY A SCALE HAS A WEIGHT AT THE TOP

WE have probably noticed that some large scales used by tradesmen have a weight



suspended at one end of the cross-beam, just where the chains come down to hold the pans. This weight is not moved on and off the scale in weighing goods as the weights placed on the pan are moved. It remains in position all the time. The suspended weight is really to adjust the balance and keep it true. It is full of small leaden balls, and the top of it can be unscrewed. If by any chance one side of the scale gets heavier or lighter, and the scale becomes untrue, by removing or inserting one or two leaden balls in the suspended weight the balance of the scale can be perfectly restored.

WHY A HORSE WEARS BLINKERS

THE two leather flaps, decorated with brass or steel, which are seen upon a horse's head-harness, and cover his eyes on each side, are called blinkers or blinders. They are placed in this position so that the horse shall be able to see only in front of him, and shall have no view of either side. It used to be thought that if the animal had an uninterrupted view all round from side to side he might be easily startled; but so far from this being the case, there are many who think it far safer to drive a horse without blinkers than with them. They are not used at all for horses that are ridden, nor are they used for horses driven by the military authorities.

THE NEXT PART IS ON PAGE 6163.

A scene from a Shakespeare play: Meeting-place of the Jews in "The Merchant of Venice"

CONTINUED FROM PAGE 5904.

WILLIAM SHAKESPEARE

THE HERO OF THE WORLD OF BOOKS

WILLIAM SHAKESPEARE, acknowledged by all nations as the most wonderful genius that ever, in any age or land, wrote books, was born in the heart of England, April, 1564, at Stratford-on-Avon, one of the sweetest places in the world. His family were plain country people. John Shakespeare, his father, son of a farmer, was a respected tradesman who rose to be alderman and high bailiff of Stratford; and his mother, Mary Arden before marriage, was a well-to-do farmer's daughter.

The lad, always a poet at heart, received at the grammar school of the town an education which enabled him to glean, in after life, from all the harvests of the world's learning, though he was not an exact scholar. He left school too early for that — probably when he was about thirteen.

What young Shakespeare did immediately after he left school is not certainly known. No doubt he helped his father, who was becoming less prosperous; and perhaps he had some experience in a lawyer's office, for later he showed a clear knowledge of the law and of legal ways, and no one can tell when he gained it if it was not during his youth.

Companies of players visited Stratford in those days. Not far away was Kenilworth, where gorgeous masques were arranged in honour of Queen Elizabeth when Shakespeare was about eleven; and at Coventry — a neighbouring place — festivals of acting were held from time to time. It is clear, then, that Shakespeare, when a boy, knew something of the drama.

As a young man the poet seems to have been rather rash and headstrong. At any rate, when only eighteen he married Anne Hathaway, a farmer's daughter eight years older than himself, living at Shottery, a hamlet adjoining Stratford; and three or four years afterwards he found it convenient to leave his native district and seek his fortune in London. No written account of Shakespeare's departure from his home has been preserved, but the story is that he joined other wild spirits in a poaching expedition to Sir Thomas Lucy's park at Charlecote, was caught and punished, and then wrote such annoying verses about Sir Thomas that it became necessary for him to run away from that magistrate's anger. Certainly, many years

after he contemptuously caricatured Sir Thomas as Mr. Justice Shallow.

Of all the men who tramped wearily to London in the olden times, hoping to make their way in the world, none probably had a sadder heart than William Shakespeare. He had left behind him, in the place he loved, a wife and three children, a father sinking into poverty, a reputation for troublesomeness; and as yet he had not done anything to make people think well of him.

SHAKESPEARE'S TEN WONDERFUL YEARS

Ten years passed away, ten great years for Shakespeare, and then he returned to Stratford a comparatively rich man, admired by the greatest in the land, a favourite of a queen; re-established his family, and for use during his visits home bought the largest house in the town. How had it happened?

On reaching London young Shakespeare seems to have become connected quickly with the theatres, at first, according to tradition, as a minder of the horses on which some of the richer play-goers had arrived. It has been suggested that he organised a service for this purpose, taking loungers round the theatre into his employment. Before long he had been accepted as an actor, and next became busy rewriting unsatisfactory plays, or joining with others in composing new plays. A few years later his genius found expression as an original dramatist, though always working on borrowed materials, until he was admitted, even by the rivals who had been jealous of him, to be the first playwright and poet of his day.

SHAKESPEARE GOES HOME

Always a man of good business ability, he secured a share in one of the theatres, and, gradually increasing his wealth, purchased more and more property at Stratford as the years went on, till, about 1611, he retired there, and, after some years of ease, died there in April, 1616, when only fifty-two.

And now into the quietness of the shaded parish church come, from all parts of the world, reverent pilgrims, who gaze with full hearts at the strange inscription on the slab of stone in the chancel floor under which rest the remains of the great hero of the world of books. A strange warning inscription it is, but perhaps necessary in the days when the bones of the dead were gathered after a while into the common charnel-house:

> Good friend, for Jesus' sake forbear
> To dig the dust encloséd here;
> Blest be the man that spares these stones,
> And curst be he that moves my bones.

It is the homely rhyme of one who never guessed how sacred his grave would be to all the generations of men.

His verse might endure, but for himself his last modest request craved only an unmolested tomb. There spoke the Stratford lad come home. But in the interval between his going and his coming great things had happened.

THE COUNTRY LAD WHO BELONGS TO ALL TIME

The true life of Shakespeare is in his books. Into them was put that which has taken captive the minds of men, and with one consent they have applied to the poet in his last resting-place his own beautiful words:

> Fear no more the heat o' the sun,
> Nor the furious winter's rages;
> Thou thy worldly task hast done,
> Home art gone, and ta'en thy wages;
> Fear no more the lightning flash,
> Nor the all-dreaded thunder stone,
> Fear not slander, censure rash,
> Thou hast finished joy and moan,
> Quiet consummation have,
> And renownéd be thy grave.

What kind of man was William Shakespeare, so simple in his birth, life, and death, so lasting in spirit and influence? The character of the poet — the impression he made on those who knew him — is outlined in a number of jottings by his friends in prose and verse. They all picture him as a delightful companion. The older writers of his day, when their first jealousy of the country-bred poet was over, were sorry they had felt jealous, and acknowledged him with admiration as an open-hearted friend, loyal, and cast in the gentlest mould.

As his life went on, Shakespeare seems to have known much personal sorrow, and with its coming the tone of his mind changed, so that from being merry and careless, full of rather wild and frolicsome spirits, and fond of the "jigging rhymes" his friend Kit Marlowe had forsaken for blank verse, he grew grave, tenderly humourous, thoughtfully fanciful, graciously wise. As his thoughts of life deepened with his changing spirits, his mastery of the art of writing in a freer style, with power and beauty, increased. So to understand Shakespeare's plays we must know in which part of his constantly expanding life each was written. Four words will suggest the changing spirit of the poet's writing — jollity, romance, strength, peace. They mark natural stages of human growth. In this, as in so much else, Shakespeare seems to have been a miniature of mankind.

We must now pass along his life again, observing it through his works, and noting in a few outstanding examples the growth of his character and art.

The period of Shakespeare's activity as a writer balances about the year 1600, beginning about twelve years before that date and ending twelve years afterwards — 1588 to 1612.

Though he was a poet all the while, we must remember that he was by business an actor, and began to write at first as an improver of old plays for acting, and not for reading. In this attempt he joined with others, such as Marlowe, who at first had more experience than himself as a writer. At this time people were eager to *see* the history of their country acted, for they had few opportunities of reading it. One of the first plays that Shakespeare revised was the "First Part of Henry IV.," and the first play of his own making was "Love's Labour's Lost," written in 1590 or 1591. It remains the best example of his youthful manner.

WILLIAM SHAKESPEARE AS A BOY

The "Comedy of Errors" and "Two Gentlemen of Verona" were written in the same early period. These plays are light and bright, showing gaiety of spirits, and they jingle with many rhymes. They include, too, pretty poetical touches, such as the sweet description of a brook's journey:

> The current that with gentle murmur glides
> Thou knowst, being stopped, impatiently doth rage;

But when his fair course is not hindered
He makes sweet music with the enamelled stones,
Giving a gentle kiss to every sedge
He overtaketh in his pilgrimage;
And so by many winding nooks he strays,
With willing sport, to the wild ocean.

During this 'prentice period the poet wrote his first tragedy, "Romeo and Juliet," a play compounded of poetry and love; and then passed on to the dainty fancies, bright and aerial, of "A Midsummer Night's Dream." Before the end of the year 1594 he had begun to write historical plays seriously. "Richard III." was now written, and "King John."

Shakespeare's Love of England

No other poet has so passionately demanded love for "Our dear mother, England," as Shakespeare. Such words as these close "King John:"

This England never did nor ever shall
Lie at the proud foot of a conqueror,
But when it first did help to wound itself.
Now these her princes are come home again,
Come the three corners of the world in arms
And we shall shock them. Nought shall make us rue
If England to itself do rest but true.

The same note was sounded in "Richard II.," where John of Gaunt is the mouthpiece of an exultant patriotism:

This royal throne of kings, this sceptred isle,
This earth of majesty, this seat of Mars,
This other Eden, demi-paradise,
This fortress built by Nature for herself
Against infection and the hand of war,
This happy breed of men, this little world,
This precious stone set in the silver sea,
Which serves it in the office of a wall
Or as a moat defensive to a house,
Against the envy of less happier lands,
This blessed plot, this earth, this realm, this
. . . . . England,
This land of such dear souls, this dear, dear land.

At the Christmas of 1594 Shakespeare was acting before Queen Elizabeth, and evidently was a favourite. He was now known and admired as a poet as well as a playwright, for both "Venus and Adonis" and "Lucrece" had appeared, and his sonnets were probably written and privately circulated, though they were not printed till many years after. In 1596 the perfect comedy of "A Merchant of Venice," was composed; and before the end of the century the English historical plays had been brought to a climax in "Henry V."

If Shakespeare had died before

But the writings that have made him supremely great in the eyes of all the generations that have followed him had yet to be written. If Shakespeare had died in the year 1600 he would have lived in men's memory as a poet of rare insight, whose work in words would defy the hand of Time whose power he so hauntingly described:

Time's glory is to calm contending kings,
To unmask falsehood and bring truth to light,
To stamp the seal of time in aged things,
To wake the morn and sentinel the night,
To wrong the wronger till he render right,
To ruinate proud buildings with thy hours,
And smear with dust their glittering golden towers.

To fill with worm-holes stately monuments,
To feed oblivion with decay of things,
To blot old books and alter their contents,
To pluck the quills from ancient ravens' wings,
To dry the old oak's sap and cherish springs,
To spoil antiquities of hammered steel,
And turn the giddy round of fortune's wheel.

The Lovely Song to Sylvia

Had he died in 1600 he would have been known as a writer of lovely songs that seem to sing themselves as the winds and waters sing — songs like that lovely song to Sylvia:

Who is Slyvia? What is she
That all our swains commend her?
Holy, fair, and wise is she;
The heaven such grace did lend her
That she might admiréd be.

Is she kind as she is fair?
For beauty lives in kindness;
Love doth to her eyes repair
To help him of his blindness,
And, being helped, inhabits there.

Then to Sylvia let us sing.
That Sylvia is excelling;
She excels each mortal thing
Upon the dull earth dwelling.
To her let us garlands bring.

He would have been known as a writer of delightful comedy and noble history; but he would not have had the reach and depth and strength of mind we now see in him.

What it was that came to Shakespeare and saddened him, and set him to the task of sounding the profundities of character and passion, we shall never know. But for some reason he became more gravely meditative. He felt himself growing old:

That time of year thou may'st in me behold,
When yellow leaves, or none, or few, do hang
Upon those boughs that shake against the cold,
Bare ruined choirs, where late the sweet birds sang.
In me thou see'st the twilight of such day
As after sunset fadeth in the west,
Which by and by black night doth take away.

"You may be Christ or Shakespeare, little child: a saviour or a sun to this lost world" A picture of Shakespeare in his cradle, painted by T. Brooks in the room where the poet was born

Even in the lovely open-air tale of "As You Like It" there comes a minor note prophetic of much to follow:

Blow, blow, thou winter wind,
Thou are not so unkind
As man's ingratitude.
Thy tooth is not so keen
Because thou art not seen,
Although thy breath be rude.

Freeze, freeze, thou bitter sky,
Thou dost not bite so nigh
As benefits forgot.
Though thou the waters warp,
Thy sting is not so sharp
As friend remembered not.

And now it was — perhaps because in his prosperity he had greater leisure for reading and thought — that he passed on to narrate noble history in "Julius Cæsar;" to sound the depths of thought in "Hamlet;" to study with a terrible fidelity the fatal blindness of jealousy in "Othello;" to lay bare the secret workings of unchecked ambition in "Macbeth;" and to rack our very hearts with tragedy in "King Lear." All these stupendous plays were written between 1600 and 1606. And then followed, towards the end of Shakespeare's writing days, a restful period, and he finished his labours with the gentle, pensive wisdom of "Cymbeline," "The Winter's Tale," and "The Tempest."

Ariel's song of freedom

To the very end the poet kept unimpaired his elf-like fancy and his tuneful touch. What could be more graceful than the song of freedom of the happy sprite, Ariel, in "The Tempest?"

Where the bee sucks, there lurk I;
In the cowslip's bell I lie,
There I couch when owls do cry.
On the bat's back I do fly
After the summer merrily.
Merrily, merrily, shall I live now
Under the blossom that hangs on the bough.

The longer Shakespeare wrote, the more he built up his plays on the characters of the people who were introduced. He might borrow the main incidents from other men's writings — he nearly always did that — but the characters were his, and the drama of their development was original. For the groundwork of his stories he ransacked Europe, old and new. It mattered not to him where the scene was laid. He not only traced for his patrons the stirring history of their own land, but he carried them to Greece, ancient Rome, Italy, France, Spain, Germany, Egypt, Cyprus, Denmark, Scotland, and early Britain.

Shakespeare's power of unveiling the past

Our hearts swell with pride as we take our stand with Henry V. at Agincourt on St. Crispin's Day, "we few, we happy few, we band of brothers." Or, spirited away to Rome in the days of "the mighty Julius," we learn far more of the high-minded Roman public spirit from Shakespeare than we can realise for ourselves among the eloquent ruins of the palaces he never saw. He has the power of revealing the secrets of centuries of history in a few speeches. Through his Shylock, for instance, we understand the position of the Jew in the Middle Ages far better than we could know it through a library of histories.

This poet gave all womanhood afresh to the world of books by his marvellous portraits of heroines, daring, noble, or sweet. Having exhausted the lands of reality, he annexed the kingdoms of the air, and peopled them with such fascinating sprites, monsters, ghosts, and witches — Ariel, Caliban, Puck, Titania, and the rest — that they disarm our reason by charming our fancy. We have majestic thought surging through deep-toned verse; melody of words in haunting songs, snatches from Nature's eternal hymns; humour droll, or sly, or rollicking; and homely wisdom from simple tongues.

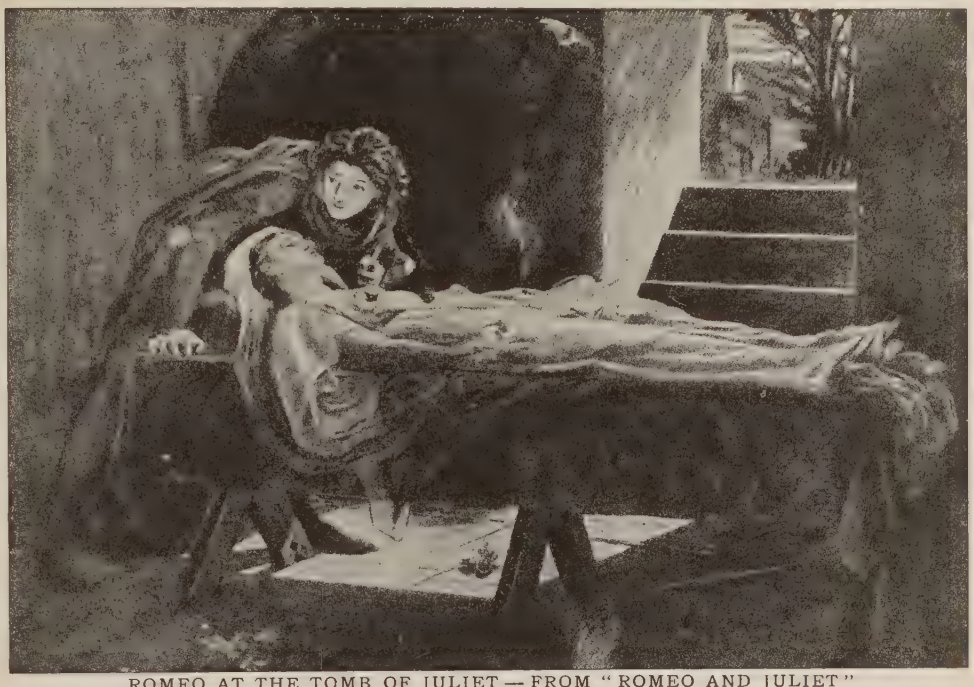
The supreme man of the world

It seems, indeed, as if in Shakespeare the complete scale of the human mind and of human utterance had been sounded. The world ripened rapidly into the glorious age of Queen Elizabeth, and strangely produced, from the simplest surroundings, a supreme man, so comprehending that all the world agrees with what Matthew Arnold said of him:

All pains the immortal spirit must endure,
All weakness which impairs, all griefs which bow,
Find their sole speech in that victorious brow.

SCENES FROM SHAKESPEARE'S PLAYS

Shakespeare pictures would make up a gallery almost worthy of the plays; except the Bible, no book has given so many opportunities to the painter as Shakespeare's plays. Here we give pictures of eight scenes from the plays, painted by famous artists.



ROMEO AT THE TOMB OF JULIET — FROM "ROMEO AND JULIET"
Romeo, returning from exile to find Juliet in the tomb, mourns her as dead, and dies himself as she awakes

OTHELLO WATCHES THE SLEEPING DESDEMONA — FROM "OTHELLO"
Desdemona, "a maiden never bold," falls in love with "what she fears to look on," and marries Othello

A BEAUTIFUL BOY AND AN IMMORTAL ROGUE

FALSTAFF REVIEWING HIS RAGGED TROOPS — FROM "KING HENRY IV"
A wit, thief, glutton, coward and boaster, yet no character of Shakespeare's is more alive with merriment

ARTHUR WITH HIS MOTHER AND THE EARL OF SALISBURY — FROM "KING JOHN"
Arthur's appeal to Hubert is perhaps the most pathetic pleading in all Shakespeare's plays

TWO OF SHAKESPEARE'S HEROINES

OPHELIA AND THE GUILTY KING AND QUEEN OF DENMARK — FROM "HAMLET"
This picture, by Miss Henrietta Rae, is published by permission of the Corporation of Liverpool

ROSALIND GIVES ORLANDO A CHAIN — FROM "AS YOU LIKE IT"
This picture is from the painting by Harold Speed

LEAR THE KING AND CALIBAN THE SLAVE

PROSPERO, WITH MIRANDA, DENOUNCES CALIBAN — FROM "THE TEMPEST"
Caliban is perhaps the most hideous figure that Shakespeare drew, a monster possessing all the vices

KING LEAR GIVES CORDELIA'S SHARE TO HER SISTERS — FROM "KING LEAR"
Cordelia, refusing to flatter the vain old king, her father, is cut off in favour of her cunning sisters

CONTINUED ON PAGE 6095.

Tea-pickers at play after a day in the tea gardens in India

THE STORY IN A TEACUP

CONTINUED FROM PAGE 5867

We think little enough of the tiny leaf which floats in our cup of tea, yet the little leaf has had a world of adventure. It may have grown in China, or more likely in India or Ceylon. It has sprung up on land rich with the leaves and fibres of a dead forest; it has borne the intense heat of the sun, and flourished through the heaviest rains.

It may have reached its prime on a sheltered plain, or attained perfection on a loam-strewn mountainside. And when the life of the leaf upon the plant is ended by the picker, complicated machinery takes it and bakes it, ferments it and sorts it and packs it, and sends it forth.

Nobody can say certainly where the first of these plants grew, but we know that for about two centuries all the tea brought to England came from China. It first made its appearance there early in the seventeenth century, and so great a novelty was it that people paid from five to ten sovereigns a pound for it.

At such a price it could never have become popular, but fully a hundred years later it still realised five dollars or more a pound in London, and the principal shop at which it was sold combined the business of tea-dealing and banking. As more tea came, prices became lower, and so great was the demand that the fastest ships were devoted to the tea trade. As soon as they got their cargo they raced home, and the ship which arrived first got the best price for the new season's crop. The use became common in America before the Revolution.

If drunk in large quantities, or when it is too strong, tea is injurious; but rightly made, and drunk in moderation, it is one of the most delightful of beverages. Robert Southey, the poet, has told us how friends of his, on getting their first supply, carefully made their brew in the kettle, threw away the liquid, and then solemnly sat down to eat the leaves with butter and salt!

With the growing demand for tea from China, the East India Company thought that they might introduce the growth into India, and sent to China for seeds. But while the messengers were yet on their way tea was discovered growing wild in Assam. There, in the favoured home of the tiger, rhinoceros, leopard, elephant, buffalo, and bear, grew the friendly plant. Planters lost no time in cultivating it, and in 1843 the first cargo of Indian tea was placed on the London market.

Immense numbers of men and women and children are engaged in

the cultivation of the tea plant. Happily, their labour is not very hard. Their pay is small, but their requirements are more easily met than are those of people in western lands, where the cost of living is higher and the manner of life different.

A tea plant is ready for the picker when it is about five years old. The pickers, carrying a basket slung upon their shoulders, and supported by a band passed round the forehead, enter the plantation, and go from tree to tree. They take only a few buds and young tender leaves from each, then pass on to the next. As they pick the leaves and buds they toss them into their baskets, and these, when filled, are carried to the factory, and their contents weighed. The plant continues to grow all through the warm, rainy season, and picking goes on from day to day as new leaves and buds come out.

What happens at the manufactory

It is at the factory that the process of preparing tea is carried out. The tea is first emptied out on to shallow trays, and a pound of tea covers an area a yard square. The trays bearing the tea are carried to a heated room, through which a strong current of air is forced. This is to soften and wither the tough leaf. Next the leaves are passed through a machine which curls them. Following this the tea is spread out or placed in drawers, and covered with damp curtains. The heat and moisture cause the tea to ferment, after which it goes through a sort of baking process for a few minutes to dry out the moisture caused by fermentation.

The leaves have now to be sorted into sizes and qualities, sieves of various meshes being employed for the purpose. Then, after a second drying, the tea is ready for market. It is packed by machinery into chests lined with lead, and away it goes to the ship. The process, of course, varies in different districts.

So far we have been speaking of the Indian method of treatment, in which, from the time that it is picked, the tea is not handled at all. In China the process is different. There the tea is rolled by hand and trodden by foot. Even there, however, the voice of public opinion is being heard, and machinery is being introduced.

For many years attempts have been made to grow tea in the United States, and there are tea-gardens of considerable size at Summerville, South Carolina, and at Pinehurst in North Carolina. Several thousand pounds a year of excellent tea are produced, but the cost of labour is so much more than in the East, that only expensive grades can be produced at a profit.

When the tea ship arrives

Great Britain is one of the greatest tea-using countries. The trade is very important, and the way the tea is handled is interesting. When it arrives samples are drawn from the cargo and sent to the merchants, who submit them to the tea-taster, so that they may have his opinion on the quality and the value of the shipment. He has a tiny pot of tea made from each, and he moistens his mouth with a sip from each brew. Those that he likes, and knows to be of the character required, he commends, and the merchant buys them at the sale.

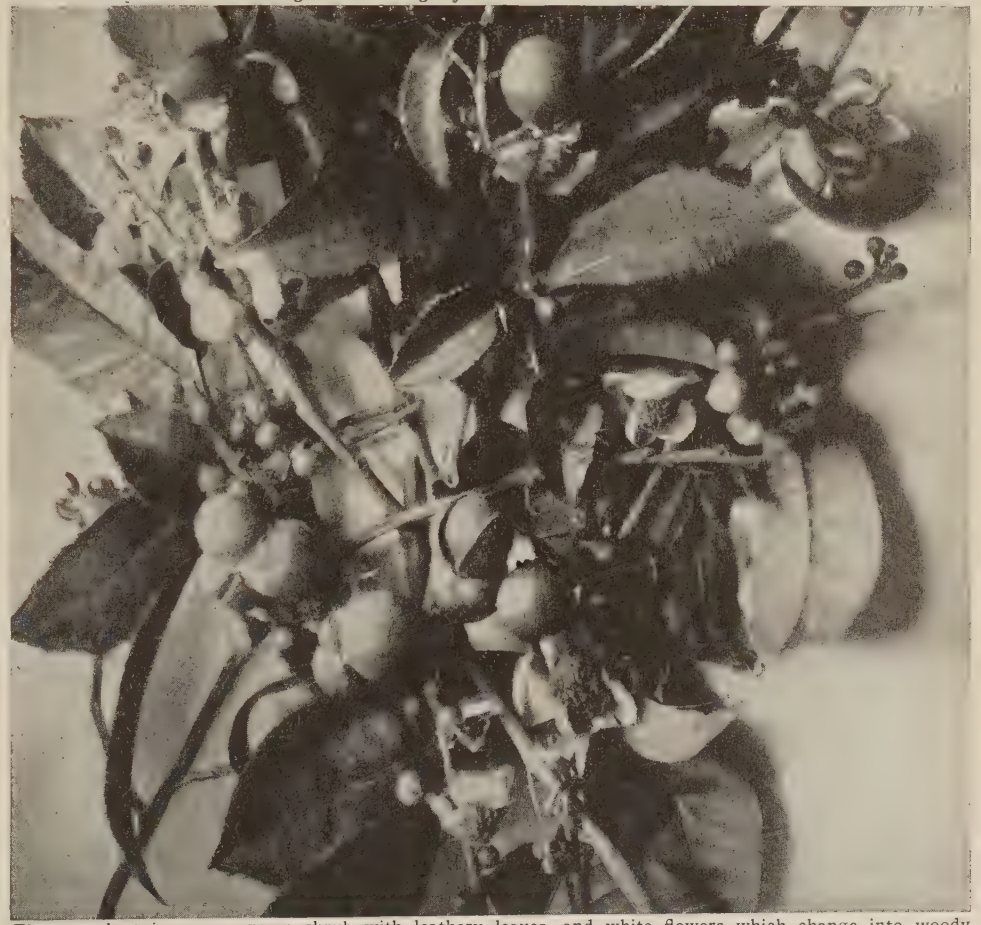
The difference that the home of a teacup makes to the tea

When the tea reaches the merchant's warehouse a new experience awaits it — it has to be blended. The merchant has a book in which are recorded all the different qualities and peculiarities of the water supplied to the districts of the United Kingdom. For each district there is a special blend. A tea which would be satisfactory if brewed in one part of the country would be quite unsuitable to the water of another part, and the blending is therefore one of the most important features of the tea industry. How difficult this blending is may be imagined from what happens on the railways. The main lines run over great reaches of country, tapping a variety of water-supplies. The result is that tea of four or five different blends has to be supplied for the refreshment-rooms on the railways.

CONTINUED ON PAGE 6081.

THE LEAF THAT REFRESHES MILLIONS

Although tea was introduced into England less than 300 years ago, no less than 270,000,000 pounds is now used in the United Kingdom in a single year. This shows how the shrubs are cultivated in rows.



The tea plant is an evergreen shrub with leathery leaves, and white flowers which change into woody seed-vessels. Our teas generally consist of dried leaves of several varieties of tea plant blended together.

WHAT A TEA GARDEN IS LIKE IN INDIA

Originally nearly all our tea came from China; in 1836 a pound of tea came to London from Assam, — the beginning of the tea trade of India, where half a million people are employed gathering the leaves.

Many of the tea-pickers are boys and girls, like these little Cingalese, and are quite as quick and skilful at their work as the grown-ups. India and Ceylon now produce 411 million pounds of tea a year.

THE FRIEND WHO PLUCKS THE LEAF FOR YOU

The picking of the leaf is now practically the only part of the manufacture in which the tea is touched by hand. This woman, as she plucks the young leaf-shoots, puts them into the basket on her back. Photographs on these pages are taken by the India Tea Association, Davidson & Co., Underwood & Underwood, and others.

A HAPPY TEA PARTY IN A JAPANESE GARDEN

Forty years ago China supplied most of the world's tea, but since that time other countries have grown immense quantities of tea, and Japan now produces more than forty million pounds a year.

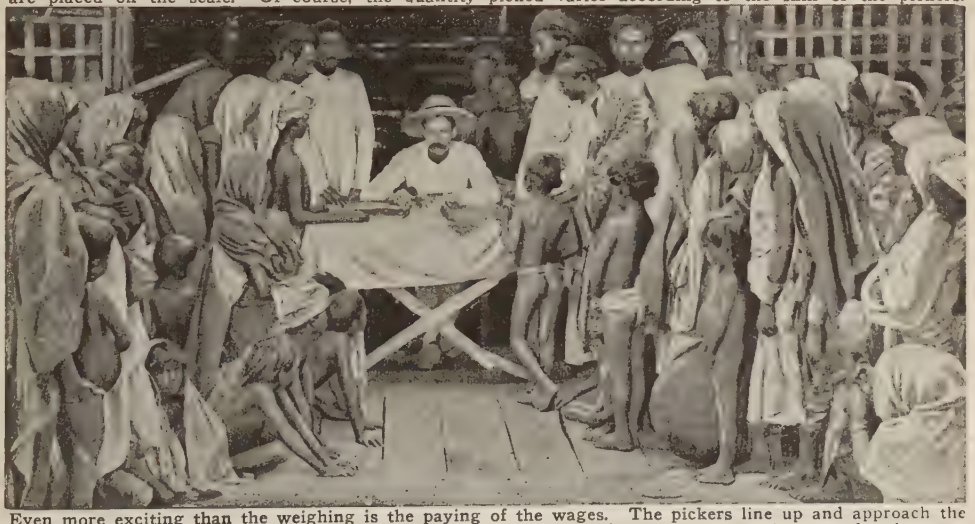
The Japanese women in the tea plantations frequently carry their babies tied to their backs, as here shown. Japan exports much green tea, which is from the same plant as black tea, but is dried differently.

Photographs copyright by Underwood & Underwood

WEIGHING THE TEA AND PAYING THE PICKERS

Twice a day the coolies bring their baskets of leaves to the factory, that the stock which they have picked may be weighed, and it is a very picturesque sight when they are gathered together, as shown here.

Pickers are paid according to the weight of leaves brought in, and there is much excitement as the baskets are placed on the scale. Of course, the quantity picked varies according to the skill of the pickers.

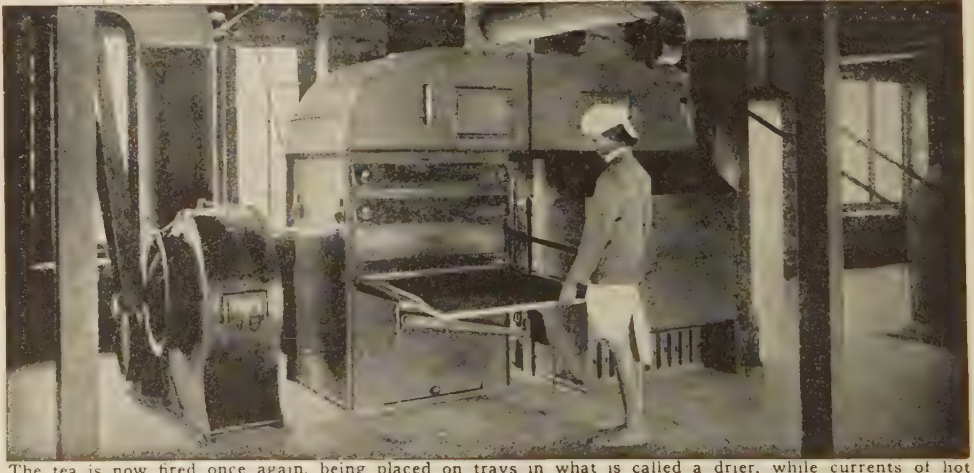


Even more exciting than the weighing is the paying of the wages. The pickers line up and approach the paying-out clerk in procession, each checking his or her money before passing to make room for the next.

THE TEA LEAVES ARE SIFTED AND DRIED

At the season of picking, when young leaf-shoots are forming, leaves are picked every eight or nine days. At the factory they are spread out on racks, as shown here, so that some of the moisture may evaporate.

The leaves are next rolled to crush their cells and release the juices, then spread out in the air, rolled again, and fired or baked, after which the leaves are separated from the stalks and sifted, as shown here.



The tea is now fired once again, being placed on trays in what is called a drier, while currents of hot air are passed gradually over it until the leaves become firm and crisp. It is then ready for packing.

PACKING THE TEA FOR ITS LONG JOURNEY

The Chinese still pack tea in the old-fashioned way. It is put into large cases lined with lead foil, and is trodden in by the coolies with their bare feet. Then the foil is closed over, and the lid is nailed down.

Modern methods prevail in India and Ceylon, whence much tea comes. There, much of the tea is packed ready for the shops in small packets, the metal foil covering being soldered down to keep the tea air-tight.

SENDING THE TEA OUT TO THE SHOPS

The tea that comes over in large cases is bulked and blended in the London warehouses. This means that cases of various kinds of tea are emptied out in one great heap on the floor, and mixed by men, as shown

Then it is packed back into the large cases, pressed down tightly, and sealed up ready for the shops. Australians and New Zealanders are the biggest tea-drinkers in the world, and the English come next.

Broad Street, in Augusta, Georgia, a beautiful Southern city

GLIMPSES OF THE SOUTHERN STATES

CONTINUED FROM PAGE 5631.

THE settlement and the early history of the Southern States of our country are told in the History of the United States, which also tells of the great war between the sections. This article will show something of the South to-day, which has changed much since the Civil War.

First, we must decide what we mean by the South. Eleven states seceded and formed the Confederate States of America. They were Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Texas, Arkansas and Tennessee. Besides these, Maryland, Delaware, Kentucky and Missouri also held slaves and are sometimes called Southern States. West Virginia was made a state during the war, because few slaves were held in that part of Virginia, and the people did not wish to leave the Union, and is not really a southern state.

These states are not all alike, and even different parts of the same state may be very much unlike in surface and industries. The people also are very much unlike in the way they live and in their thoughts.

From Washington several lines of railway lead southward. We may go to Richmond, one of the most interesting cities in the United States. It was founded soon after 1737 and in 1779 became the capital of Virginia. During most of the Civil War it was also the capital of the Confederacy. It is a beautiful city overlooking the James River, with large parks, beautiful drives, and stately homes.

From Richmond we may go westward to Charlottesville, to see the University of Virginia, founded by Thomas Jefferson; or we may go to some of the delightful resorts among the mountains; or we may go to Lexington, a spot sacred to the Southern people, for there General Lee spent his last years as president of Washington College, and there Stonewall Jackson taught in the Virginia Military Institute. Both are buried there.

On the other hand we may go from Richmond down the river past the ruins of Jamestown, where English-

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men first succeeded in planting a permanent colony in our country on our way to Norfolk and Newport News, both busy cities, on one of the best harbours in the world. What a thrill it gives one to see the land where the first American state began to grow. Old Point Comfort, the site of Fortress Monroe, is a favourite resort for health and pleasure-seekers, winter and summer, and nearly always vessels of the United States Navy are in the harbour or the Navy Yard at Portsmouth.

From Norfolk it is a short journey to the eastern coast of North Carolina, with broad shallow sounds shut off from the sea by sand bars. We may visit Roanoke Island, where Sir Walter Raleigh tried three times to plant a colony and see where the old fort stood. All this section is low and fertile, with so many streams that boats are used as often as carriages to go from place to place. Newberne is an old town, founded more than two hundred years ago by Swiss settlers, and further to the south is Wilmington, on the Cape Fear River, also an old town. It is an important port from which cotton and naval stores go to all parts of the world. During the Civil War it was one of the chief ports from which steamers ran the blockade, taking out cotton and bringing back manufactured articles, for which there was such sore need in the Confederacy.

In the centre of the state is Raleigh, the capital of the state, named for the man who planted three colonies in the state. Further to the west are Durham, Greensboro and Winston, all important manufacturing towns. At Chapel Hill near Durham, is the University of North Carolina, founded in 1789, one of the oldest state universities. Going southward from Greensboro, we are seldom out of sight of a furniture factory or a cotton mill, until we reach Charlotte, the largest city in the state, and a centre of the cotton industry, for North Carolina has more mills than any other state. Perhaps, however, we turn west at Salisbury and go to Asheville among the mountains, or to some of the other resorts in the "Land of the Sky." Thousands of tourists visit these mountains every year. In summer they come from the South; in winter from the North.

One speaking of South Carolina always thinks first of Charleston, the beautiful, some pictures of which we show on another page. The low country in which Charleston is situated is famous for the production of the sea-island cotton, and of rice. In some sections few white people live, and we see black faces almost entirely. More than half the people of this state are negroes. Columbia, the capital, was burned after its capture by General Sherman in 1865, but has been rebuilt. Its broad streets, with their fine trees, its monuments and public buildings, and its great manufacturing establishments make it worth a visit. Aiken is a famous winter resort.

There are other thriving towns in South Carolina but we are now on our way to Atlanta, the chief city of Georgia. Nearly all of the cities and towns we have mentioned are old, but we come now to a town which is comparatively new. It was well-situated for trade, and was beginning to gain importance before the Great War. Since that time it has grown rapidly and is often compared to the western cities. The principal business streets are bordered by high buildings and there are many fine residences on others. Atlanta was the home of Joel Chandler Harris whose Uncle Remus stories all of you have read.

The state grows much cotton and manufactures much of what it grows. The pine trees furnish tar, pitch and turpentine. The two chief cities in the eastern part are Augusta on the Savannah River, over two hundred miles from the mouth, and Savannah only a few miles from the sea. Both are important manufacturing cities, both send ships to all parts of the world, and both are popular winter resorts. Sea-island cotton grows on the coast, and raising fruits and vegetables for the northern markets is also an important industry. We are now getting so far south that winter is hardly more than a name, though ice forms occasionally during the colder months.

South of Georgia is the state with the

longest coast line, Florida, stretching out like a long finger into the sea. It is almost entirely an agricultural state, except for the manufacture of tobacco and lumber. Raising tropical fruits and vegetables for the northern markets is the chief industry. Oranges, grapefruit and pineapples are known to us all. Strawberries ripen before the snows are gone in New England, and many other berries are also grown. Early vegetables are sent to the northern markets before gardens are even planted in that section. Much of the southern part of the state is a swamp, known as the Everglades, inhabited only by Indians and a few white men who have pushed their way into the wilds. Alligators, snakes and tropical birds abound, but the plume-hunter has almost destroyed several species of the birds for their feathers. It is now planned to drain these swamps so that the land can be cultivated.

The climate draws thousands every year who seek to escape the cold of their homes, and for their accommodation many gorgeous hotels have been built. St. Augustine, the oldest city in the United States, Tampa and Palm Beach are among the leading resorts. Jacksonville is the largest city, but the capital is Tallahassee.

Our next state is Alabama, low and swampy in the south near the gulf, but hilly further north, with mountains of coal and iron. Here were, and still are, great plantations upon which hundreds of negroes work. In some counties they outnumber the whites five to one. The state is one of the largest producers of cotton, but has also great mineral wealth. Mobile on Mobile Bay, opening from the Gulf of Mexico, is an old city which was once the capital of the Louisiana Territory, and has been in turn under French, British, Spanish and American control.

Montgomery is the capital, and here the Confederate government was organised Feb. 4, 1861. Birmingham, sometimes called the Southern Pittsburg, manufactures much iron and steel, and has grown into a city on that account. At Tuskegee is the Tuskegee Institute for the education of coloured people in various trades. Booker T. Washington is the president.

The adjoining state of Mississippi is also a great producer of cotton, though other crops also grow well as the soil is very rich. Along the Mississippi, great banks called levees have been built to protect the fields from overflow by the floods of the great river. Nearly all the people live in the country, as the cities are small. More than half the population is composed of negroes. Natchez and Vicksburg on the Mississippi are the chief cities. The latter was fortified by the Confederate armies during the Civil War and was only taken after a long siege in 1863, by the Union forces under General Grant, as you may read on another page. The capital is Jackson, near the centre of the state.

You may read on page 1396 how the great Louisiana Territory was purchased by the United States, and to this day signs of its former French ownership still may be seen. Some of the inhabitants speak only French, though the number of such is growing smaller. In New Orleans, the chief city, one part is called the "French quarter," and shows many quaint reminders of bygone days. This city is below the level of high water in the Mississippi, which is kept out by the levees. In the cemeteries the dead are buried in vaults constructed above the ground. The Carnival is held every year, ending with Mardi Gras, the last day before Lent, and attracts thousands of visitors. The city is noted for its flowers.

There are no other large cities. Shreveport, and Baton Rouge, the capital, are the largest. The state raises most of the sugar-cane grown in the United States, as well as much cotton, rice and corn. The forest wealth in pine and cypress is enormous.

Leaving Louisiana and crossing over into Texas brings us into an empire which would require a book to describe. It is the largest state in the Union. Some counties are larger than several states. In population it ranks fifth and is growing rapidly. Almost every variety of soil is to be found, and many different crops can be grown. Though

for a long time cattle-raising was the chief industry, agriculture now holds the first place, and considerable manufacturing is developing. There are yet, however, many great ranches where thousands of cattle feed.

As you have read in another volume Texas was once a part of Mexico and gained independence by hard fighting. Along the Rio Grande, which now separates the state from Mexico, the influence of that nation is strong. The inhabitants of Texas have come from every state in the Union, and there is room for thousands more.

The chief cities are San Antonio, a picturesque city founded by the Spaniards about two hundred years ago; Dallas, a thriving manufacturing city; Galveston, the principal port; El Paso, on the Rio Grande, just across from Mexico; Houston, named for Sam Houston, the great Texan, and Austin, the capital.

West of Texas lie the new states of New Mexico and Arizona, but their population is small as yet; and they belong to the West rather than to the South. The new state of Oklahoma, north of Texas, was until recently Indian Territory, and was not a part of the Confederacy.

Arkansas, north of Louisiana, is almost altogether a farming state, though the mineral wealth is considerable, and the forest wealth is very great. Next to the Mississippi, the land lies low and is very fertile, and the same is true of the land along the Arkansas River, which divides the state into almost equal parts. Further to the west, there is much poor land, which is very thinly settled.

The only city of considerable size is Little Rock, which is also the capital. Hot Springs is a flourishing little city, which has grown up around many springs of hot water, which have medicinal properties. Thousands visit these springs every year to bathe in the waters, and to drink the waters of some of them. The springs are owned by the United States.

We may now turn eastward and cross the Mississippi into Tennessee at Memphis, on the only bridge across the stream south of St. Louis. This is the largest city in Tennessee, has a great trade up and down the river, and is becoming an important manufacturing city.

The state itself is one of the most interesting in the Union for many reasons. It was originally a part of North Carolina, which gave up its rights just after the Revolution. Almost every variety of soil and climate may be found, as we go from the lowlands below the level of the Mississippi, eastward through a fine, agricultural and grazing country to the high mountains, which separate it from North Carolina. Along the Mississippi the vegetation is almost tropical, while in the mountains many plants and trees which are generally found much further north grow freely. The Tennessee River flows twice across the state before it reaches the Ohio.

The capital is Nashville, a beautiful city, important in the Civil War. Vanderbilt University and other great educational institutions are located here. Chattanooga, near the Georgia line, is a thriving manufacturing city. Here one of the bloodiest battles of the Civil War was fought. Knoxville is also a thriving city.

Now we have told something of all those states which seceded, and tried to form a new nation, but which are now thoroughly and entirely a part of the United States. Many of the people of Missouri and Kentucky, as well as of Maryland and Delaware, like to call themselves Southerners, but we have not space to speak of those states just now.

Much could be written of life in the South, of the negroes, of the sports, manners and customs of the people, but all these must be left for another time. All the Southern States have increased greatly both in population and wealth since the Civil War. Some are rapidly becoming manufacturing states, instead of devoting almost all their attention to agriculture. The most important industries are the manufacture of cotton yarn and cloth, cotton seed oil, furniture and other articles of wood, tobacco, iron and steel, but there are many others.

THE VIRGINIA HOMES OF ROBERT E. LEE AND JEFFERSON DAVIS

Photograph by Brown Bros.

These two houses are particularly interesting to Southern boys and girls. The one to Mrs. Robert E. Lee. It now belongs to the United States, and the grounds are lived in Richmond, and is sometimes called "The White House of the Confederacy."

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on the left is Arlington, just across the Potomac from Washington, which belonged a National Cemetery. The other house was occupied by Jefferson Davis while he It is now a Confederate museum.

COTTON FIELD AND COTTON MILL IN NORTH CAROLINA

North Carolina has become one of the leading states in the manufacture of cotton, which is very often grown in fields around a mill. Here are cotton pickers at work, and also the immense weaving room of the White Oak Mills of Greensboro, where cotton is being transformed into cloth. Though negroes cultivate and pick the cotton, they seldom work in the mills. That work is done by white men, women and children, most of whom have come from the farms to the mills. The mills are generally in villages. Few are in cities. In fact there are few cities, or even large towns, in North Carolina.

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CHARLESTON, THE BEAUTIFUL

The most fashionable residence district of the delightful city of Charleston is the Battery on the water front. No city in the United States is more attractive as a place of residence. This charm has always been a part of Charleston, and is felt by every visitor. The capture of Fort Sumter in the harbour, in 1861, by the newly organised Confederate forces, was the beginning of the Civil War.

Though Charleston is a beautiful city with a restful atmosphere, it is also an important port. From its docks ships sail to Europe carrying cotton, rice and many other things. This is the Commercial Wharf. The bales of cotton shown may soon be on the other side of the world. The South is the world's great source of cotton.

ATLANTA IN WAR TIME AND TO-DAY

Photograph by Brady

Picture from Brown Bros

On Nov. 17, 1864, during the Civil War the greater part of Atlanta was burned by order of General Sherman, who had captured the town after hard fighting. Its growth since that time has been marvellous, both in population and wealth. The Candler building shown here is only one of many great office and manufacturing buildings. Many great establishments in other sections have their Southern offices in Atlanta, which is a great railroad centre.

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VIEWS IN NEW ORLEANS, THE CRESCENT CITY

New Orleans, the largest city in the South, is built on the Mississippi River, more than one hundred miles from the mouth. It is built on a bend of the river, and is often called the "Crescent City." As much of it is below the level of the river, great banks called the levees have been built to shut out the water, and these also serve as wharves. Our pictures show steamers loading at the levee, and Canal Street, one of the principal thoroughfares of the city. This street divides the old French portion of the city from the newer American part.

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CHATTANOOGA AND NASHVILLE, TENNESSEE

Around Chattanooga, now so peaceful and prosperous, were fought some of the fiercest battles of the Civil War. The mountain beyond the city is Missionary Ridge. On November 25, 1863, a Federal army under General George H. Thomas, took by storm these heights defended by Confederates under General Braxton Bragg. Chattanooga was in turn in possession of Confederate and Federal armies.

The state capitol at Nashville, Tenn., stands on a considerable elevation and looks somewhat like a fortress. In fact during the Civil War it was so occupied, and the walls yet bear the marks of shells.

Photographs by Brown Bros.

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THE FIRST MEN IN ENGLAND

A TALE OF THE DAYS OF LONG AGO

SWAR was the first baby ever born in the land now known as England. His father, Wawa, was the leader of a tribe of savages living across the river which divided the country from what is now France. There was no English Channel in those day, but only a broad, deep stream running between low banks of chalky ground. Wawa had often swum across it, and returned home with a string of rabbits hanging from his shoulders; for food was growing scarce in France, and the green jungle on the English side of the river was full of game.

One bitter winter, when the tribe was starving, Wawa crossed the river and returned with a young fat deer. It was then that the tribesmen, after some discussion, decided to move to the other side of the stream. At first many of the women refused to go.

"The river is too deep and swift," said Bina, the wife of Wawa. "The children will either be drowned or killed by the wicked longhorns."

By the longhorns she meant the fierce rhinoceroses which then lived in English waters. For England at that time was very different from what it is now. The land was a wild green jungle, haunted by stealthy and terrible lions, and great bears, and fierce wolves. Reindeer, horses, sheep, and oxen roamed in wild herds in the open places, and now and then a troop of hairy elephants came crashing through the forest. In the reedy rivers, herds of gigantic animals snorted and splashed.

"There is no danger," said Wawa. "The men can easily swim with the children on their backs, and you women can carry the tent-skins."

"And who will carry the fire?" said Bina.

To this question Wawa could not find an answer. It was clear that the tribe must carry their fire with them. Few savages in those days knew how to make fire quickly, either by striking sparks from a flint or by twirling a stick of hard wood in a hole made in softer wood. Most of the tribes got their fire from volcanoes and burning forests, or from some race who had already obtained a tribal fire from these natural sources.

Time after time he made a great torch of firwood, and tried to swim the river so that he could light a fire with it on the other bank; but the torch always went out before he

reached the shore. At last, as winter was changing to spring, he thought out a plan.

"We must make a large raft," he said, "large enough for us to carry fire on."

He chose three great oak-trees, and the tribe set about felling them. The only tools the tribesmen had were rough, blunt stones fixed into cleft sticks. With these flint axes it was impossible to cut down a great tree. So Wawa hollowed out a small hole in the trunks of the trees, and in these holes kept fires lighted until the bottoms of the trees were nearly burnt through. Then one wild night a storm of wind came and sent the oak-trees crashing to the earth.

The tribe danced around the fallen trees, and feasted far into the night. It was the first time they had been able to fell great forest trees, and the sense of a new power filled them with pride. Everybody was now eager to cross the great river and settle in the new land where food was plentiful.

It took six weeks for the tribe to make a raft capable of carrying their precious fire, and their little babies, and the skins they used for tents. Axe after axe was broken in lopping off the large boughs. The women took the blunted flints and sharpened them. They worked in pairs. One held the flint in both hands on an anvil-stone; the other woman sat on the other side of the anvil and struck rough flakes off the flint

The tribesmen, after some discussion, decided to move to the other side of the stream

with a stone punch and a stone hammer. Their work was rough, and their tools were little better than sharp flints found by the roadside, yet they were human tools, and with them they got the wood for the raft ready by the middle of April. They fastened the larger pieces together with long strips of reindeer skin, and bound the smaller sticks with willow twigs. Then they lined the middle of the raft with clay, and when this was dry they lighted a fire on it, and, with long poles, steered their flaming vessel across the stream. They were nearly overturned by a rhinoceros, but the smoke blew into the face of the monster and frightened him off.

How the tools were made

"Ho, ho, ho!" shouted Wawa, as he moored the raft by the English bank. "That's the first time old Longhorn has seen a fire on this water, and he doesn't like it at all. Ho! ho! ho!"

The men made a clearing on some high ground by the river, and put their fire in the centre of it. Then they brought their babies and tent-skins across on the raft, and the older children and the women merrily swam after them, and began to busy themselves with setting up the first village in England. Four rough stakes were fixed in the ground, four poles were lashed to their tops, and over this structure the skins were hung.

"How many tents shall we put up?" said some of the tribesmen to their chief.

"One man," replied Wawa.

By this he meant twenty huts. The tribe were not good at figures. They had words only for the first four numbers — one, two, three, four. For five they said a hand; for six, a hand and one; for ten, two hands; for fifteen, two hands and a foot — that is to say, ten fingers and five toes; for twenty they said a man, which was a short way of saying ten fingers and ten toes. If you had asked Wawa what was the number of men and women and children in his tribe, he would have replied, "Three men, two hands, and three."

The weapons they used

I will leave you to make out how many that comes to by our way of reckoning. The next morning, however, there were three men, two hands, and four in Wawa's new village. For in the night a little baby boy was born to Bina. He was a funny little creature, and he came into the world lightly covered with fine, soft hair.

"How pretty he is!" said his mother. "Let us call him the Fawn."

"No, no," cried Wawa; "if we do so he will grow up as timid as a deer. He shall be called the Lion."

Now, the lion, in their language, was called the "Swar." And that was how the first baby that was ever born in England came to be known as "Swar."

THE FIRST BOY IN LONDON

HOW SWAR PLAYED WITH THE CAVE LION

SWAR was about five years old when he came to London. It was a very strange place in those days. The Thames was much deeper and wider than it is now. A great part of the valley between the heights of Hampstead and the hills of Surrey was under water, and the rest was a trackless jungle swamp. Here and there, on patches of rising ground, grew large fig-trees laden with ripe fruit, tall laurels, towering planes, and hundreds of strange plants and lovely flowers which flourish in warm countries.

Monkeys chattered in the forest; herds of elephants and wild horses and

wild cattle roamed in the prairies. In the river were fierce, huge water-beasts, like the rhinoceros and the hippopotamus; and panthers and leopards and striped hyenas crouched by the river-edge.

"Here we will plant our tents," said Wawa, the father of Swar and the chief of the tribe, leading his people to the spot where St. Paul's Cathedral now stands. "The great water will protect us on the south," he said, pointing to the Thames. "And these streams will guard us on the sunrise and the sunset," he continued, turning to Walbrook on the east and Fleet River on the west.

On the north was a swampy marsh, and here the tribe built a great fire, and kept it burning night and day to scare wild animals away from their camp.

"Be very careful, Bina," said Wawa to his wife, "that Swar does not toddle beyond the fire. Women and children must bide in camp until the hunters have cleared the swamp of great beasts."

"How tired I am of it all!" exclaimed Bina. "Ever since Swar was born we have been kept moving farther and farther north. Shall we never settle down quietly in some place where the children can walk about in safety?"

"Yes, little woman," said Wawa, with a smile. "Now I have come to this great new river, where game and fish and beavers are so abundant, I will cease from wandering, and settle here. Look! Here is the pelt of a lion's cub I killed this afternoon in the swamp. You can make Swar a fine dress of it. Then he will be a little Swar indeed."

Swar was the tribesmen's word for "lion," and it was given to the little boy so that he might become as brave and mighty as the king of the jungle. Bina was much pleased with the cub's skin, as her child had torn his beaver dress to pieces. Without waiting to cure the pelt, she quickly scraped it and tied it round Swar, who was eager to show himself to his playmates in his new and glorious attire.

"I'm a lion — a terrible lion!" he shouted gleefully, running among the other children.

He ran about on all fours, trying his best to roar in a voice of thunder, and his companions pretended to be very frightened, and then they got some sticks, which they made believe were spears, and with these they began to hunt the lion.

Swar was at a disadvantage, as, in order to play the game, he had to crawl about on his hands and feet. At length, pressed by the hunters, he crept down the bank of the Fleet River, and tried to find some hole into which he could retreat.

"Daddy says that the cave lion always goes into its cave when it is badly wounded," said Swar to himself, as he clambered down to the water-edge, and then stole out into the swamp.

By this time he had got quite away from his companions. He could hear them calling in the distance to each other, but none of them dared to leave the camp. Swar hid in a clump of bulrushes, vainly waiting for his playmates to come and discover him.

It was not until it was growing dark that he came out, and then he was frightened by the silence and the loneliness and the strangeness of the jungle in which he had hidden. It was too dim for him to see his way, and in trying to get back to the camp he walked farther out into the marsh.

Suddenly a lion roared quite close to him. He cried out in terror, and a huge form crashed through the underwood and pounced upon him, and then stood over him, whining curiously, and licking him and smelling him. It was the lioness whose cub Wawa had killed. The poor huge beast knew the smell of the skin that Swar wore, and thinking that he was her cub, she picked him up gently in her mouth and trotted off with him, purring as a cat does when it is pleased.

All that night Wawa and Bina and the men and women of the tribe wandered by the Fleet and the Thames and the Walbrook, searching for Swar. At break of day the father found the trail of his little son, and quickly traced it through the swamp to the clump of bulrushes. There he saw the print of the feet of the lioness, and he cried with woe, and fell down weeping.

Very slowly he went back to his tent, and took out his heaviest club — a great stone thing weighing a quarter of a hundredweight — and called to all his men to bring out their hunting spears and follow him.

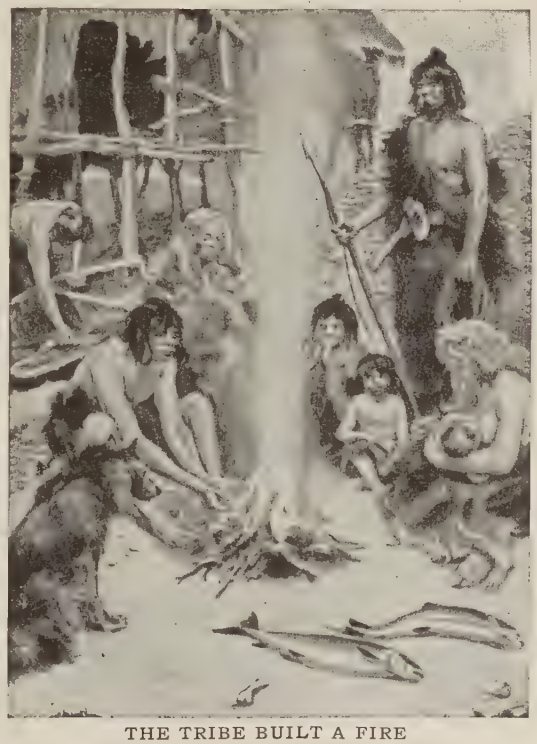
"Are you going to find Swar?" said Bina. "Have you found his trail?"

"Yes," said Wawa slowly. "I have found his trail."

He could not bring himself to tell his wife what he had found besides, but hurried off with his men on the spoor of the lioness. "I killed her cub; she has killed my child," he thought to himself. "I will take care that she shall not kill anything else."

He traced the spoor of the huge beast across the swamp to a cavern on the southern slope of Primrose Hill.

"Wait till I call," he whispered to his men. And very warily and very gradually he crept up between the dense jungle growth to the mouth of the cave. Happily, the wind was northerly, so his scent was not blown towards the beast's den. He got within fifteen paces of the cave, and then peered through the leaves.



THE TRIBE BUILT A FIRE

Had he been less surprised at what he saw, he would have leaped up and shouted. As it was, he kept utterly motionless with wonder. The lioness was lying just outside the cavern, and Swar was sitting between her huge paws and merrily playing with her.

He pulled her woolly fur, and she sat blinking at him with her large yellow eyes. Then he tried to clamber up her huge back, but rolled down, and seized her long tail, saying, "If you won't take me back to the camp, I'll run away." He started to toddle off, but the lioness arose and gently took him in her mouth and sat down again by the cavern, and dropped him on her paws, and purred over him and patted him lovingly.

"She thinks he is the cub she lost, and she is afraid to let him go from the cave," said Wawa. "She smells the cub's skin around him, and that saves him."

The chief crept back to his men, and told them to return to the camp.

"One man now," he said, "is better than many. There will be less danger of her scenting anything strange when she leaves her den in search of food."

Happily, the great beast was very hungry, as she had not done any hunting while seeking for her cub. A little before noon she got up and shook herself, and disappeared in the jungle.

"Swar! Swar!" said Wawa to his boy, who was sitting on the ground.

Swar ran forward with a cry of joy, and Wawa lifted him on his shoulder, and tore with him through the jungle.

That night the chief had a line of fires lighted all along the northern side of the camp, and the lioness howled behind them for her little human cub. But Swar was sleeping soundly in his mother's arms.

THE FARMER AND THE RAVEN

A MAN caught a raven, and, after a great deal of trouble, he managed to teach it to say, "Of course I am." He then took it to a neighbouring town, and offered it for sale in the market-place.

By-and-by two farmers came, and one of them asked the price of the bird.

"Ten pounds," said the owner.

"That's a lot of money," remarked the farmer to his friend. "Do you think it worth so much?"

Before the other farmer could reply, the bird croaked hoarsely, "Of course I am."

This apparent cleverness so pleased the farmer that he paid the money and carried off the raven.

When he got home, he said to his wife:

"See, I have brought you a present."

"Oh, thank you!" said the wife. "He is a very pretty fellow."

Promptly the raven exclaimed, "Of course I am."

The woman was greatly pleased. "He is as sensible as a human being," she said, and the raven answered solemnly, "Of course I am."

The farmer and his wife were quite delighted, and looked forward to having much amusement from so clever a bird. Their hopes, however, were doomed to disappointment, for the raven never spoke but the one phrase. Many a time did the farmer wish he had not parted with his money so thoughtlessly. At length he exclaimed in anger:

"That bird is a regular swindle."

The raven stretched out his neck and croaked dismally, "Of course I am."

"Try before you buy, next time," said the farmer's wife.

THE SON WHO RETURNED HOME

IN Japan, many years ago, a son who lived a very bad life brought great disgrace on his parents, who, nevertheless, loved him dearly. But their relatives persuaded them that it was their duty to disinherit so bad a son, and it was arranged that, according to custom, a meeting of the relatives should be held, to go through the ceremony of disinheriting.

The son heard of this, and, speaking mockingly of his parents before his bad companions, he declared that he would suddenly rush into the meeting, and, swaggering like a brigand, demand a large sum of money before they should get rid of him.

When he came to the house he peeped through a hole in the door, and saw the family sitting in a circle. The disinheriting document was handed to the father for his seal, but, with tears in his eyes, the father hesitated.

"After all," said he, "my son may get better."

"Yes," said the mother. "Let us wait a little longer, and see if he will turn."

The relatives urged them to affix their seals; but again the parents hesitated, and, with tears in their eyes, spoke of the possibility of their son giving up his evil ways.

The relatives began to get annoyed, but the father would not put his seal to the document. The son, who was listening, felt a new sensation come over him. He was touched by the love of his parents, and, bursting into the room, he craved their forgiveness and gave up his evil ways.

THE STONE THAT GATHERED NO MOSS

A BOY came home from school one day, and said to his mother: "The teacher told me this morning that it was not worth my while coming to school any more, as I seemed to have nothing more to learn."

"Very well, my son," replied the mother, "if you have done with school, you must go to work. I know of a tinker who is in want of a boy; you shall go and work for him."

The boy was delighted, and accord-

ingly set out next morning to learn the trade of a tinker. It was summer-time, and for a while he was quite happy roaming about the country with his master, grinding knives and scissors. But winter came, with frost and snow, and he found that the life of a tinker was not all he had thought it. So he decided to look for other work.

A few days later, as he was passing along a street, he saw a tailor sitting in a shop window stitching away. "That is the sort of work I should like," he thought. "I will become a tailor." So he left his master and started to learn how to cut cloth and make clothes. For a while all went well.

"I am indeed fortunate to have got work so much to my liking," he thought. "I shall suffer no more from the bitter winds or driving storms of rain and snow. No more cold hands and tired feet for me. I shall have nothing to do but sit in a warm room and stitch from morning to night."

The boy decided to look for other work

Once more he became discontented. Not all at once, of course, for discontent never comes like that, but one little thing was unpleasant, then something else became disagreeable, till before very long he was as unhappy and enduring as many miseries as he had already escaped from.

"It's all very well to be a tailor in the winter-time," he said to himself, "though sitting still on a hard board hour after hour makes one's limbs ache so that it is nearly impossible to stand; but in the hot summer days it is really cruel to expect me to remain at work indoors with the heat from the irons. No, I can't stand it any longer. I must get other work."

That afternoon there came down the street a regiment of soldiers. How brave they looked in their scarlet coats!

"There is some pleasure in a life like that," thought the boy. And then and there he decided to become a soldier.

Very soon he found out that he had made a mistake. A soldier's life was far different from what he had imagined. There was heavy drill and constant work. The flashing swords, the flying plumes, and the brilliant uniforms had all to be kept in order. It was not the easy life of grandeur and glory he had pictured, but one of endurance and effort. Sometimes when he was quite worn out with the exertions of the day he had to mount guard instead of having the sleep and supper he longed for. To make matters worse, he could not give up his work the moment he grew tired of it, as he had done before. He was bound to serve his country for seven years, and, whether he liked it or not, had to obey those who were over him and make the best of the position his foolishness had brought him to. At length his period of service came to an end, and he took his discharge. He made up his mind to visit his native village. On the way he heard of a farmer who wanted an extra hand to help with the harvest, so he made his way to the farmhouse, saw the farmer, and asked for the post.

The farmer asked him what kind of work he could do.

"I can turn my hand to almost anything. I have been a tinker and a tailor and a soldier."

"Ah," said the farmer, "I am afraid you are not the sort of man I want.

I am looking for a man who is not afraid of work. If you had had any idea of working for your living, you would not have tried so many trades. You would be of no use on the farm."

And so the young man went here and there, but wherever he went it was the same story, no one wanted to employ a man who had done a little of everything but had learnt nothing well. And all his life he had difficulty in earning sufficient to keep himself.

HOW THE CHILDREN SAVED THE BEARS

"THEY'VE come!" said Wandy, sitting on the log beside Tiki-tiki. "Two red-faced men from town, come for 'scientific research,' with their horrid legs all strapped up in leather! They've pulled out their guns already, and they're all looking at them and talking, inside" — she nodded towards the homestead — "daddy, too, and Alan; and once *he* wouldn't have shot a bunny, even if it had eaten up his prize lettuce! When they've had some tea, the men from town are going straight off to get Australian specimens. They want a native bear, alive, 'cos the law says they must not be killed; but if it dies it can't be helped. It'll do stuffed! Isn't it awful?"

The children warned the bears to say nothing

"Isn't it dreadful?" echoed Tiki-tiki gravely.

"And daddy says *we* are to show them where the bears are, 'cos no one else knows. What shall we do?"

The children looked at each other with round eyes of horror.

"What shall we do?" asked Tiki-tiki.

"We can't tell them *wrong*," said Wandy, "'cos *that* would be fibs. *I* know" — she mused slowly — "we might show them where the bears are *when they're there*. Let's tell them where the bears live when they're at home, and, while we go through the bush, warn them not to be in to-day!"

"What a good plan!" said Tiki-tiki. "And when we've passed the bears' home, we might *lose* the men a bit for cruelty to animals — especially *our* animals."

In due time Wandy and Tiki-tiki set off for the bush, as the country is called in Australia. With them were the two scientists, a dog, two guns, and two wallets full of cartridges. The scientists found the children charming comrades, full of instructive chatter about their little bush brothers and sisters, as they called the wild creatures of the forest.

"Wandy means little woman," said Tiki-tiki. "It's aborigine talk. My name's Little Brother, and the baby bears are koalas. These are our bush names."

But he did not tell that Wandy and he could speak the fairy language. *That* might have given a clue to show the scientists what they were doing to save the baby bears.

The two little blue smocks sped on as fast as four short legs could go. The scientists, though vastly interested in all they learnt about bush creatures'

ways, thought it a long, long walk to the bears' home. Under the blue smocks Wandy's and Tiki-tiki's hearts were beating time to their legs. For the children were afraid the bears might be sleeping up in the tall gum-trees, and never hear the warning.

It was in fairy talk that Wandy and Tiki-tiki warned the bears to lie low and say nothing. All the time they were passing under the gum-trees they trampled hard on the bracken and twigs and bark, and asked the two scientists if they would please stamp hard too, so as to scare away the snakes! So the bracken and twigs and bark were all the time crick-cricking a message on wireless fairy telegraph batteries. Then the locusts on their watch-towers in the branches took the message, and sent it from tree to tree, wherever there were bears; and the message said:

"Danger! Scoot! Love—From Wandy and Tiki-tiki."

But the wise gum-trees that stretch their protecting arms above all the innocent bush folk swayed anxiously, and sighed a wireless question back to the children: "How about the doo-doo? Will not *he* scent out the bears?" Doo-doo is the word for dog.

So Wandy rustled her hand caressingly through some gum-leaves to say: No! For Tiki-tiki has a nice little bit of raw steak in his pocket, and the doo-doo will follow him, and not bother about any other trail."

Such a dance Wandy and Tiki-tiki led the scientists

By this time the scientists were hot and cross and tired, and sat down in the shade to rest. But Wandy and Tiki-tiki went straight ahead, and never once looked back; and the doo-doo followed Tiki-tiki, nuzzling at his pocket.

When the scientists thought it time to move, they looked round for Wandy and Tiki-tiki; but all they could see far away in the scrub was two blue smocks fast vanishing out of sight, and a gleam of golden hair, and a little round, dark, bobbing head.

"Coo—ee! What a bit!" they called.

The goblin kooka-burras laugh at sunrise

Such a dance as Wandy and Tiki-tiki led those two scientists you could never think. In and out among the trees, over logs, down gullies and across creeks with the kooka-burras as they call the laughing jackasses in the bush, laughing all the time. When the scientists got near enough to clutch the children, they were off again; and, indeed, if the scientists had not been so very scientific, they could almost have fancied they followed a fairy and an imp instead of a real little girl and boy.

In a little glade, deep in the heart of the bush, the scientists thought they had at last overtaken the children, but they rubbed their eyes when the blue smocks turned out to be two little blue gum-trees swaying in the wind, and the gold hair was a sunbeam, and the little dark head a bobbing shadow.

The scientists, who had often boasted of their skill as bushmen, found, to their disgust, that they were hopelessly outwitted. Then the mosquitoes found them out, and *they* were more irritating than even Wandy and Tiki-tiki. And those goblin kookaburras, who always laugh at sunrise and sunset, and so are called the bushman's clock, were saying quite plainly: "Lock-up time in the bush! All trespassers out!"

Meanwhile, Wandy and Tiki-tiki, followed by the doo-doo, marched right on for home, and when they reached the slip-rails of the home paddock it was quite dark.

Indoors daddy and Alan were waiting for the scientists, anxious to see the day's bag, but mother was eager to have Wandy and Tiki-tiki safe in her arms again.

Of course, everyone understood that the scientific guests had waited behind to make the most of the last hour of daylight, which is the best time for sport, for at dusk all the shy creatures venture abroad.

Ten o'clock struck, but, though there was a bright moon, no scientific friends appeared, and the doo-doo was whining uneasily. So a search-party had to go — daddy, and Alan, and the gardener, and even an old tramp who was camping at the homestead for the night.

Strange to tell, the doo-doo was now quite ready to leave Tiki-tiki, and joyously bounded ahead with Alan, and was not long in following up the trail and finding his lost masters, who were really quite angry, though, as visitors in a strange house, they had to pretend that it was a good joke. They cheered up a little while they were eating the hot supper mother had kept for them, and the doo-doo was being fed by Wandy and Tiki-tiki, who had been allowed to stay up late to see if the wanderers reached home in safety.

After supper, sitting round the big cosy wood fire, people began to ask questions.

"Queer you had such poor sport today," said daddy. "The children have never failed before to run across some native bears. Very queer!"

"Yes," said one scientist. "But more remarkable still that my dog deserted me for your little boy. He has never done that before."

Then the other scientist began to wonder why Wandy and Tiki-tiki had not waited when he coo-eed.

"Why didn't you keep up to us?" said Wandy, looking at them gravely.

The scientists went back to town next day. They had had enough of the bush — no sport, too little scientific research, and too much of Wandy and Tiki-tiki. They have written in their scientific notebooks that there are very few animals in that part of Australia.

So this was how two little Australians saved the baby bears, and they mean to do the same every time people go out to harm their brothers and sisters of the bush.

TALES TOLD IN A MINUTE

SAVING FIVE HUNDRED YEARS

A JAPANESE boy caught a tortoise, which is known to live hundreds of years.

"A fish for dinner will do just as well," said he. "I will not cut short its long life of five hundred years."

So he put the tortoise back in the sea.

THE BREAD-WINNER

A father was working on a high scaffold with his son, when the scaffold broke, so that it could support only one.

"Good-bye, father," said the son; "you are the bread-winner. I will let go."

So the son died, and saved his father to support the home.

SELLING THE SUN FOR A SOVEREIGN

A man once found a sovereign in the street, and for ever afterwards it was noticed that he looked on the ground as he walked along.

But he never found another sovereign, and he never saw the sun.

STORIES TOLD IN CHINESE SCHOOL-BOOKS

There is no lesson more widely taught in China than that of respect for parents. This is enjoined as a religious observance, and has developed into the worship of ancestors. The story-books of the Chinese boys and girls are full of such stories of filial love as are given here.

THE MAN WHO FOUND DEER'S MILK

THERE was a young man named Yen, who had a great love for his father and mother, both of whom were very feeble and nearly blind. The doctor who visited them declared that the only thing that could possibly do them good was deer's milk, but this was too costly for them to buy. In the dead of night Yen went away to the mountains and shot a wild deer with his bow and arrow. Then, stripping off the skin, he dressed in it, went among the herd, milked the deer, and brought the milk to his parents, thus saving their sight.

THE BOY WHO SERVED HIS FATHER

WHEN little Hwang lost his mother, he determined more than ever to be a faithful and loving son to his father. It was the summer-time, and the father tossed about on his bed, unable to get any restful slumber owing to the great heat. Hwang crept to the bed, and, taking his little fan, stood over his father all night fanning him, so as to make him comfortable. This he continued to do all through the summer months. Then, when winter came, Hwang always lay upon his father's bed for an hour, to make it warm for him.

THE FISH FROM THE LAKE

A LITTLE boy named Liang, who had lost his mother, had a stepmother who treated him roughly, and was always finding fault with him. But Liang did not let this draw him away from his duty, and he was always seeking to do some kind act for his stepmother. She was very fond of fish, but during a cold winter there were no fish to be had. So Liang went out at night on a frozen lake, and, lying at full length on the ice, he breathed upon it until a hole was melted, and then through this he drew two carp, and took them home for his stepmother's breakfast. A great poet who heard of Liang's action wrote a poem about it.

THE BOY AND THE MOSQUITOES

THE parents of Wu Mang, who was only eight years old, were very poor, and could not afford curtains to put round their bed to protect them from the mosquitoes. So directly his father and mother were asleep, Wu Mang went and lay down close to them, and when the mosquitoes settled upon him did not drive them away, but allowed them to bite him. In this way he drew all the mosquitoes away.

THE OLD MAN WHO BECAME A CHILD

LAE was an old man of seventy, but all his life he had been a most dutiful son, and now that his parents were very old, he gave up his life to pleasing them. Their minds had become weak owing to their age, and they had forgotten how old they themselves were and that their son had become a man; they thought that he was still a little child. So, in order to give them pleasure, Lae dressed himself in gaily-coloured garments and danced about like a boy, to the great delight of his father and mother, who clapped their hands and said: "What a bright little boy is our son! How happy he makes us as he gambols about in his childish innocence!"

THE KIND SON WHO BECAME EMPEROR

YU SHUN was a very dutiful son, although his parents cared nothing for him. One day his father put him down a well, and his brothers threw stones at him, but he managed to climb out. Then they set fire to a granary when he was inside, but again he escaped. All this time Yu Shun worked hard on the farm, fished in the river, and chopped down trees for fuel, so that everything necessary for the home was provided. At last the Emperor Yaon heard of his filial devotion, and chose him as husband for his daughter; later on the emperor resigned the throne in favour of Yu Shun.

THE TALE OF A SLAVE

If ever you go to Algiers you will hear the name of Geronimo, and this is the story they will tell you.

Geronimo was an Arab, a native of Algeria, where he was born in the middle of the sixteenth century. He was taken captive during an expedition made by the Spanish garrison of Oran, and was baptised into the Christian faith. When he was eight years old, however, he managed to escape and rejoin his friends. He then renounced his new religion and became once more a Mohammedan. But the teaching he had received during his captivity had made a deep impression upon him. He returned to the Spanish garrison, and became a Christian.

Some time afterwards, however, when out in a boat, he fell once more into the hands of enemies, this time a band of Moorish pirates, who carried him to Algiers and sold him as a slave.

Now, when he and his fellow-captives were standing in the slave-market wondering whether they would have kind masters or cruel, Geronimo was singled out on account of his manly bearing by an agent of the Governor of the city, who paid the price demanded. His master proved to be a stern and cruel Mohammedan, who demanded that he should give up his faith. Those who accept this religion think that they commit sin if they do not try to make all around them accept it also, and will go to any lengths to carry out their purpose.

This, however, Geronimo firmly refused to do. His master became infuriated, and treated him with great brutality. When he found that this had no effect, he offered him great rewards and even liberty itself if he would do as he wished. But Geronimo remained steadfast.

About that time a new fort was being built and Geronimo, with other labourers, was working there. Part of their duty was to make huge blocks of cement, for the walls of the fort. The process was this: the cement was mixed in great quantities, much as it is to-day, and then shovelled into big wooden boxes. When it had set, the boxes were removed, and the solid masses were carried away and placed in position.

One day, as the Governor strode among his workmen his eye fell on Geronimo. It occurred to him that a terrible instrument lay ready to his hand. He would give his slave another chance of renouncing his religion, and if he refused he should be buried alive in one of those boxes of cement.

Geronimo was brought foward and given his choice. He refused. The Governor, beside himself with fury, ordered the brave fellow's hands and feet to be bound, and the cruel sentence was carried into execution. The great block of concrete, with the heroic slave imprisoned inside, was placed in the wall of the fort. As the deed was finished, the Governor, who, perhaps, had hoped in his heart that Geronimo would not hold out, was heard to exclaim: "I never thought that dog of a Christian would die with so much courage."

The event reached the ears of one of Geronimo's old friends, a Spanish monk, named Haedo, who wrote it down. This was in the year 1569. Nearly three hundred years after, in 1853, it was found necessary to destroy the fort, and the man in charge of the work determined to see if the story of Geronimo were true. His labours were successful, for on December 27 in that year he discovered the martyr's remains enclosed in the masonry as had been described by the old monk three hundred years before.

The bones were carefully removed and interred with much pomp in the Cathedral of St. Philippe, where they rest to this day, in a marble tomb.

As a further memorial of Geronimo's splendid fidelity and courage, liquid plaster of Paris was run into the mould formed by his body in the concrete wall, and a perfect model, showing not only his features, but also the cords that bound him, and even the texture of his clothing, was produced. This now lies in the Government Museum at Algiers, and that is why, if you go there, you will hear the story of Geronimo.

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WHEN HELL GATE WAS BLOWN AWAY

Long Island Sound and New York Bay are connected by the East River, which is not a river at all, but an arm of the sea. Around Ward's Island the channel for ships was so dangerous, on account of the rocks, that the boatmen called it Hell Gate, and the United States Government determined to remove the rocks. Work was begun in 1851 and is not yet entirely completed. Our picture represents the explosion, October 10, 1885, when 285,000 pounds of powerful explosives were set off to destroy Flood Rock. This is the largest blast ever fired. The whole rock was honey-combed with chambers for the explosives.

WHAT ARE THESE BOYS AND GIRLS DOING?

All these boys and girls are doing something, but in each picture some object is left out, so that we can only say what a boy or girl is doing by the position of the body or the arms or legs. See if you can guess what is being done in each case. A list of solutions is given in the next section of Make and Do.

CONTINUED FROM PAGE 5924

HOW TO ARRANGE A PAPER CHASE

THERE are few more healthful or enjoyable ways of spending a half-holiday than in running a paper chase. It is quite easy to get out a little way into the country from any big town by train, car, or motor car, and a good cross-country run cannot but be of benefit to any boy.

Any number may take part in a paper chase, and a dozen would be a very good average number. Two of these represent hares, and the remainder become hounds. The method of playing is, of course, for the hares to run off across country, taking for preference a route not known to the hounds, and scattering torn shreds of paper as they run. A certain start—about ten or fifteen minutes—is given, and then the hounds go off in pursuit. Their object is to catch the hares—who, of course, keep together—and they follow the route by noticing the paper that has been laid. Obviously it is not wise to run on a windy day, as the paper is blown away and the track lost.

The most suitable costume in which to run a paper chase is this: A sweater or a jersey, such as is used for football, and flannel trousers. The bottoms of the trousers should be tucked into thick woollen socks or stockings, which should be pulled up outside as high as they will go, and held there by elastic garters.

This kind of dress will be found much better than ordinary knickers and stockings, as in a paper chase we may have to scramble over hedges and through thickets, and the trousers form a much better protection for the legs than a covering of stockings only. Canvas or leather shoes, with plain leather soles, should be worn.

A large quantity of paper should be torn up beforehand, packed in large canvas bags, slung in satchel fashion round the body. Each hare can take two bags if the run is to be a very long one.

It is important, too, that those who play this fine athletic game should get to bed in good time at night, for nothing spoils the running powers of a young athlete like late hours at night. It may be tempting to sit up late, but we shall surely suffer if we do so. Our muscles will not be what they should be, and our wind will fail us when we come to run over a long course.

For it must be remembered that a paper chase is not like a mile or half-mile race on a specially laid track. The man who can sprint a mile in fine style and record time is often no good for a long cross-country run. Speed is not the only essential. Staying power is most important, as we realise in a very true sense when first wind has gone. But if we are in fit condition, when second wind comes we get into a good stride and go along well.

The hounds should keep well together, in the early stages of the game, at any rate; otherwise a great deal of the enthusiasm and interest of the game goes. When they come in sight of the hares, they can then, of course, show rivalry among themselves and see which shall have the honour of actually touching the hares first.

The most enjoyable kind of paper chase is over routes that have not been traversed before, and in districts that are unknown to the runners. Everything is so fresh. But it is a very common practice for the same hares to take a new set of hounds, and cover a course that they have previously traversed. Comparisons are then made as to the time in which the rival sets of hounds come up with the hares, or reach home again after the journey. A paper chase costs practically nothing, so that no strong, healthy boys are debarred from taking part.

GAMES TO PLAY IN THE TRAIN

In the summer months most of us go for a holiday to the seaside or the country, and some of us take long journeys in the train that get very tiring unless we can find something definite to do to pass the hours. We cannot read all the time, and even if we have an inside seat we get tired of looking aimlessly out of the window. Even if there is a party of us, conversation flags after a time, and we long for our journey's end. And yet we need not get tired in the train for lack of something definite to do, for there are all kinds of games that can be played and that prove very interesting to the traveller as he speeds along mile after mile through the country.

THE LOOK-OUT GAME

An excellent game for boys and girls, and one that develops our powers of observation, is to look out for objects in the fields and roads as we pass by in the train. Marks may be awarded for each object seen and named, and different values may be given to different objects. Thus, to see a field with cows in it might be worth five marks, and a field with pigs ten marks. A church might be equal to three marks, and so on. If one of the competitors guesses that some distant object is a cow, and upon a nearer view it proves to be a sheep, five marks should be deducted from his score.

Marks should be awarded only to the competitor who first sees any particular object; that is, two competitors cannot each receive marks for the same church, or cows, or reapers, or haystacks, unless, of course, they should both call out the names at the same moment, when the marks would be divided equally between them.

The number of marks for each of the familiar objects of the countryside—cows, sheep, pigs, horses, ploughmen, reapers, churches, villages, ponds, rivers, streams, windmills, rooks, dogs, open gates, closed gates, farms, and so on—must be decided before we begin the game, and this provides plenty of occupation while we are passing out of town on the way to the country. In allotting marks to different objects, we should give the largest number to objects least likely to be seen, and the most familiar objects—such as churches, fields with cows, and so on—should receive the fewest marks. If the players sit at opposite sides of the car, and look out at the country on opposite sides of the train, the fun is more exciting than if all are looking out at one side; but we must not annoy other passengers.

THE HOLIDAY A B C

A good game for the train, and one that is quite appropriate to holiday-makers, is what may be called the Holiday A B C. Having decided who shall begin, a player gives quickly the name of some holiday place that begins with A. Then the next player asks: "What shall you do there?" And the first player must give an appropriate answer, every word in which begins with A. Then the second player gives the name of a place beginning with B, and the third player asks: "What shall you do there?" to which number two must answer in a sentence of words beginning with B; and so on. Thirty seconds only are allowed for an answer, and those who take longer are given one mark for each second that they take over the thirty. At the end of the game the player with the fewest marks wins. Of course, after getting to the end of the alphabet, we can begin again, and give fresh places, if we are not tired of the game. The letters X and Z should be left out, as they are too difficult. Here are one or two specimen answers: I am going to the Adirondacks. What shall you do there? Attempt almost anything. I am going to Bar Harbor. What shall you do there? Breathe briny breezes. I am going to Coney Island. What shall you do there? Catch crawling crabs.

A STATION GAME

Another good game which exercises the powers of observation, and at the same time provides plenty of excitement and fun, can be played after we leave any station which is a stopping-place. While the train is standing in the station all the players look about, and take as much notice of things as possible. Then, when the train has left the station, and five minutes have elapsed, we take it in turns to name any object that we saw at the station. Of course at first this is very easy, and we can go round and round again, each player naming one object which no other player has mentioned. But as the game goes on, it becomes harder and harder to think of things that were at the station, but have not already been mentioned by other players. The one who is last able to mention an object wins the game.

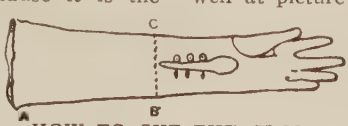
A LONELY TRAVELLER'S PASTIME

Of course, if we are travelling quite alone we cannot play any of these games, but we need not find a railway journey hang heavy on our hands. In such a case we should see to it before we start that we provide ourselves with a map of the route. Really good maps, showing all the interesting points, buildings, roads, and so on, on a very large scale, can be purchased for a few cents, and with one of these we can follow our route very closely.

If we have not been able to secure a detailed map, we can always get a railway time-table, and follow the route in the map of the line which is given in the time-table. In this case it is very interesting if we fill in the details ourselves as we go along, putting a cross wherever a church occurs, a feathery mark for hills and rising ground, squares for farmhouses, circles for ponds, and so on.

HOW TO MAKE A BAG FROM A PAIR OF GLOVES

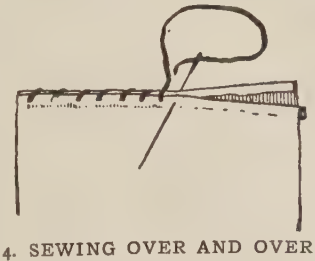
It is easy to make a dainty leather bag out of old kid gloves. The gloves must be elbow length, or longer, because it is the "tops" that we are going to use—although the fingers wear into holes, the tops always remain quite good. We shall have to ask one of our grown-up friends for a pair she has finished with, and, if she has several pairs, we will choose the darkest colour. Tan, brown, navy blue, or black are good shades, because they do not soil; and as we intend our little bag as a kind of purse, this is a consideration. Of course, if white gloves are available, we can make a small bag for quite a different purpose—an evening bag, just big enough for a handkerchief and a few little odd things when we go to the theatre or to a party. We notice that there is a seam down one side of the glove-top. With a sharp pair of scissors we cut down that seam—as from A to B in picture 1—then we cut right across the glove nearer the wrist—as from B to C—and open the piece out flat. This will make one side of our bag, and of course we get the other side in the same way from the other glove. We lay these pieces together back to back, and cut them straight, and we shall get two pieces each seven inches square. If they are big gloves we shall get a larger piece. When we have the outside ready we must think about a lining for our bag. A little strip of satin, silk, or wide, soft ribbon will do admirably. It should be of a contrasting colour, or a good match. For instance, our tan kid bag would look well lined with green or brown; if navy, lined with violet or mauve; if black, lined with white or scarlet. For the white bag it will be best to select a delicately coloured lining—pale pink, palest blue, or white. These are only suggestions. We can, of course, choose for ourselves the colour which pleases us best. If there is a "piece-box" in the house there will certainly be several pieces to choose from. We also need a yard of silk cord, the colour of our lining, for the handle and the "draw-up." Having cut our lining a little larger than the kid, we run round three sides of it with the stuff laid *face to face*—see picture 2. The fourth side we leave open. Now take up the kid, put the pieces *back to back*, and sew round three sides—these stitches are to show. If we look well at picture 3, which shows the finished bag, we shall see how the ornamental stitches are managed. The kid has been turned in once, and a stout thread of embroidery cotton or coarse silk of the same shade as the lining has been used to sew the two edges together, over and over, all round the three sides. Care must be taken to keep the stitches as even as possible, and fairly big. When the three sides are done we slip the lining inside, just as it is, and turn in the edges of the kid and the satin at the top, or opening, of the bag, so that they fit together nicely, and then sew them over and over in the same way as the sides were sewn—see picture 4. Next we make a slot for the cord to run in, by a double row of stitching across the top, leaving about 1½ inches for the frill. The slot should be half an inch wide, and must be neatly back-stitched top and bottom. We have now only to work a couple of eyelet-holes at each side, insert the cord with a bodkin, and the bag is finished. If our bodkin-eye will not take the cord, which is generally a trifle too stout to go through, we should sew the cord to the bodkin-eye with a piece of thread. The bag will open and shut more easily if we run the cord round twice instead of once. Then we are able just to give each handle a gentle pull, and the mouth of the bag closes automatically.



1. HOW TO CUT THE GLOVE

2. THE LINING

3. THE FINISHED BAG


4. SEWING OVER AND OVER

We need not, of course, keep to the square shape for our bag, for by wasting a little strip of kid we can get an oblong shape, which can be made just as useful. For instance, a bag made of black kid could be lined through with a piece of velvet and made just large enough to take a pair of spectacles. This size is best made to fasten with a little pointed flap. On the bag we sew a glove-button, and to the point of our flap we make a loop of several threads of silk.

A leather case made in the shape of an ordinary envelope is useful to anyone who goes fishing. If lined through with a strip of oiled silk, it makes an excellent holder for flies and fine wire. This case should be fastened at the point of the envelope flap.

LITTLE GARDENS FOR INVALIDS

HOW TO STUDY NATURE IN A BEDROOM

THERE came to my desk the other day an interesting letter from "A Shut-in of Many Years Standing," a touching letter, which set me thinking of the hundreds of boys and girls and grown-up readers of this book who spend their lives indoors, lying cheerfully and patiently all their days in bed or on a sofa, and complaining not half so much as some of those who live in health and strength. Many who read this book know Miss Phœbe Allen, whose little story-books thousands of children have received as prizes and thousands of grown-ups have read with pleasure, and such readers will be glad to have the peep into Miss Allen's room which we get here. She writes:

"Do you think there are any invalids among your readers, boys and girls who can never go out of doors? And do you think you could find room for a letter from a fellow shut-in, telling them how they may work at a garden in their own room? And how, besides raising ordinary plants, they may cultivate all manner of delightful rarities, such as orange and lemon trees, date palms and pepper plants, oak, laburnum, and walnut trees? And how they may make charming hanging gardens where, half-way between ceiling and floor, hyacinths and snowdrops will peep out of a globe of mossy verdure, and how even miniature lakes can be introduced into their pleasure-grounds and filled with water plants?"

Miss Allen has written us the story of her indoor garden—though she has called it Roy's garden instead.

THE STORY OF ROY AND HIS BEDROOM GARDEN

EARLY and late, Roy worked in his little plot of ground, so that when, owing to the results of a bad fall, he was condemned to lie in bed for many months, we all pitied him for the loss of his garden. But, instead of pitying himself, Roy set to work, with Dora as his assistant, to turn his room into a garden. It being late autumn, Roy started with bulbs. Some were planted in bowls of cocoanut-fibre; crocuses, gold and purple, went into shallow saucers; some pet hyacinths had separate glasses; while snowdrops and the glory of the snow had each their respective boxes. Roy's joy, however, was the two green leafy globes which hung in his window; they were real hanging gardens! Outside, they presented a mass of curling foliage, with golden daffodils gleaming in the centre of one, and hyacinths of every hue peeped over the brim of the other.

"And they were only jolly big turnips to start with!" laughed Roy, going on to explain how, after slicing off the root end, he had hollowed out two-thirds of each turnip—leaving their walls about one inch thick—and planted bulbs inside. "Then I hung the turnips up topsy-turvy, with their root ends turned toward the sky and their leaves pointing downward. But, just because Nature meant them to grow upwards, the leaves adapted themselves to their altered condition, and, turning toward the light, grew up all round the outside of the turnip, making it a regular green nest."

Then Roy showed an oak in its earliest babyhood, growing from an acorn slung on a stick across a wide-necked bottle filled with water; an infant horse-chestnut, sprouting bravely under the same treatment; four dark-leaved walnut seedlings, standing some ten inches high in the little tub they shared together—they wanted all the sun they could get; a flourishing young almond, also a seedling; and, lastly, a Cornelian cherry and a laurel, both raised from cuttings.

"And these are my foreigners," he continued, indicating a box in which several small pots were sunk in sand, with two bits of glass laid over the top, but fitting loosely in order to admit air.

Here were orange and lemon seedlings—*pip*-lings, Roy called them—date palms, one over a foot high, raised from stones, a crowd of tiny pepper-trees, scarlet chili, elephant's trunk and golden dawn.

"And now look at this!" said Roy gaily. With a cube of turf one and a quarter

inches square, and sprinkled with spores of the oak, parsley and beech ferns, and set in a flat saucer with a little water and covered over with a bell-glass, Roy had created a most successful fernery.

But I must hurry on, without pausing to dwell on the cyclamen and cacti, the fuchsias, geraniums, and other usual window plants, which were all flourishing under Roy's care, for I want to speak of the delightful miniature garden laid out in a box. This was like a deep butler's tray placed on a table, measuring about thirty inches square, and was lined with zinc, with an inner perforated zinc tray to fit at the top, this being well concealed by a thick upper layer of soil.

It had a real grass plot and gravel walk, a thicket of fairy roses—red and white, raised from seed—plots of pansies, double daisies, saxifrage and lobelia, miniature sunflowers, liliput nasturtiums, golden musk, dwarf mignonette, and clouds of sky-blue nemophila. Alpine fairies were there, too; while ivy geraniums hung over the walls of the garden, the vivid green of the leaves and the gay flowers making a perfect picture.

"And now," said Roy, "look under that brown paper on the corner table over there; that's a great surprise for the little ones."

I raised the paper, and burst out laughing. Such a comical group met my eyes. There was a Jack-in-the-green, standing up against the wall, sprouting mustard from every limb; a huge Teddy bear, with curly-leaved cress growing over him from the tip of his shaggy ears to the sole of his feet; while a very staid and solemn-looking mandarin, clad appropriately in a fine flowing robe of the new Chinese mustard, completed this trio of Greenlanders.

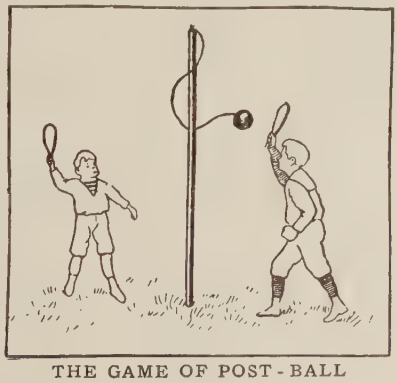
"It was nurse's idea," said Roy. "She took the baby's old toys and sewed them up in flannel, and then we damped them well and sprinkled them all over with the seeds. But we had to swing them on a line, you know, so that the mustard and cress would come up evenly all over, and now they're just perfect."

And so they were.

"As these have succeeded so well, I'm going to do a lot now for the children's hospitals," said Roy. "I shall do a whole Noah's ark, I think, and ships, and cannons, and all sorts of things," he added ambitiously.

A NEW BALL GAME FOR THE OPEN AIR

THE difficulty of playing ball games in small gardens is that the ball so often goes over the wall and is lost, or, at any rate, interrupts the game. There is an interesting ball game in which the ball is fastened up so that it cannot go over the wall. We fix in the ground a long pole, and from the top of this we hang a strong, flexible cord or string. To the end of the cord, which, when it is hanging down loosely, should reach to within about two feet of the ground, we fasten any kind of bouncing ball—a tennis ball does admirably, though an ordinary soft indiarubber ball will do quite well. Two players then stand at opposite sides of the pole, and, with tennis rackets or wooden pingpong bats, beat the ball from one side to the other.



THE GAME OF POST-BALL

The game of post-ball is to beat the ball so that the string will wind round the pole until it is all wound up, and the one who does this first wins the game. One player tries to wind up the ball round to the right, and the other to the left. Apart from the skill that is required if we are going to be successful at the game, there is a great deal of fun to be had in striking the ball backwards and forwards, besides the exercise obtained in this way.

The skill comes in when we beat the ball in such a way that we make our opponent miss it, while at the same time we are winding the string up for ourselves. On the other hand, we must try never to miss the ball ourselves; and when our opponent beats it round, we must drive it back, and thus prevent him winding the string round the pole. The game is most exciting, and its advantage is that it can be played in any garden. An ordinary tall clothes-line post will be a very good place to fix the cord, if the post is standing by itself sufficiently far away from trees and bushes and walls to give free play to the ball.

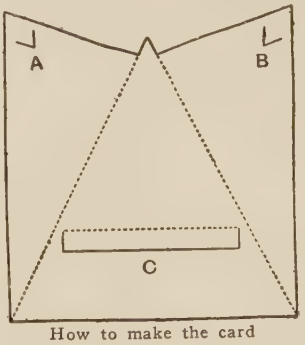
In order to fasten the string to the ball, it is best to make or buy a piece of strong string netting in which to place the ball, and the cord can then be fastened to this net.

Another way of playing is to have any number of players, who stand round the post at equal intervals and strike at the ball. The game, is, as before, to wind the string round the post, and all the players try to do this. Each strikes in turn, and if any hits out with the bat and misses the ball, he or she has to stand out of the game. In this way one after another retires, until only one is left, and he is the winner. As often as the string is wound right up, it is unwound by beating the ball in the opposite direction, and the game is continued. The fun is fast and furious, and the game is extremely exciting.

A KALEIDOSCOPE THAT A BOY CAN MAKE

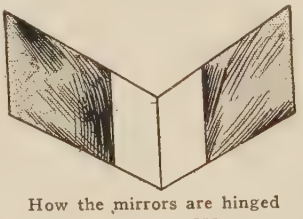
THE kaleidoscope is one of the most interesting of scientific toys, and there are few boys or girls who have not had one sometime. The name is made up of three Greek words which mean, "I see a beautiful image," and by means of the instrument an endless number of patterns, all beautiful in form, and all different from one another, can be made. As a matter of fact, so far from being a mere toy, the kaleidoscope is sometimes used by artists and pattern-makers in order to obtain new designs.

The usual form of kaleidoscope, which was invented by Sir David Brewster in 1817, is a tube in which two mirrors are arranged at an angle to one another; and between these mirrors a number of coloured fragments are free to move about as the tube is turned round. Whatever position these coloured pieces take up, they are reflected in the mirrors, and the multiplication of the pieces by reflection forms a regular design which, however irregular the coloured fragments themselves may be, becomes very artistic and pleasing to the eye.



How to make the card

But the tube, with its arrangement of mirrors inside, is not essential, and there is a much simpler form of the kaleidoscope which every boy or girl can make at practically no cost, and with very little trouble.


How the mirrors are hinged

First of all we take a piece of white cardboard, fairly tough in substance, 4 inches by 4¼ inches, and at one end of its greatest length we cut it to the shape shown at the top of picture 1. Then at A and B we cut small V-shaped nicks as marked in the diagram, and an inch from the bottom, at C, we cut a line 2½ inches long, with a little line of ⅛ inch at each end, at right angles to the longer line.

Then, on the opposite side of the card, with a penknife, we lightly score the cardboard along the directions marked by dotted lines in picture 1. This is done so that the card may be easily bent along these lines. The diagram shows exactly how we cut and score the card. The dotted lines are where we score—that is, cut only slightly into the card—and the black lines show where we cut right through. The card will form the body.

Now for the mirrors. We do not need looking-glass, but can use tin. We take two pieces of perfectly smooth and flat tin, 3 inches by 1½ inches, and, with any ordinary metal polish that may be in the house, we rub and rub these until they are burnished and shine almost like silver-plate and reflect nearly as well as looking-glass. Now, with a slip of gummed paper, we join the pieces of tin by hinging together two of their ends so that they can be opened at any angle, as in picture 2, taking care, of course, that the paper is stuck on the dull sides of the tin, and not on the sides we have burnished so brightly.

We are now ready to put our kaleidoscope together, and this is how we do it: We place the white card on the table in the position shown in picture 1, with the scored lines on the under side. Then we push up the little ledge, C, that we have cut in front, and turn up the two triangular flaps on either side along the scored lines, thus forming upright sides. Now we take the folded metal mirror, and, opening it at an angle of about sixty degrees, we place it inside the card, so that the two nicks, A and B, in the cardboard sides come over the metal and hold it in position. The turned-up ledge in front prevents the mirror from closing up.

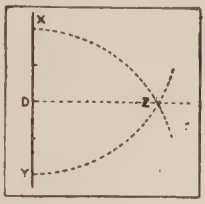
We now place some tiny pieces of coloured cardboard of various shapes on the white card between the mirrors, and, holding the kaleidoscope as shown in picture 3, we let a good light fall upon the mirrors, when we see in them a beautiful design. As we shake the coloured fragments about, the design ever changes. No matter how irregular the pieces of coloured card may be, a geometrical design will be formed, but this will be more artistic and pleasing if the fragments of coloured card are themselves cut into some regular shapes, such as circles, rings, triangles, s's, x's, and so on.

The kaleidoscope complete

With a little practice we can cut cards to hold the mirrors at various angles, for according to the angle of the mirrors, so the number of times we see the coloured objects reflected varies. Thus, when the angle is 120 we see the coloured fragments three times; when the angle is 45 we see them seven times.

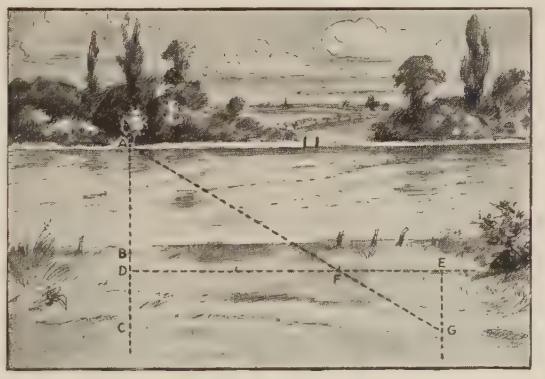
HOW TO MEASURE A STREAM

It used to be thought that only a man who had served a long apprenticeship could do land surveying; but this is far from being the case, and any intelligent boy who cares to take a little trouble can find a great deal of interest and pleasure in measuring distances and heights, and even mapping out a stretch of country. What might seem one of the most difficult things to do—measuring the width of a wide river—is really quite simple, and will provide a very interesting occupation for boy scouts and others who like to get profit for the mind as well as pleasure for the body from a walk in the country.



Making the angle

To measure the width of a stream we first of all choose a a place where both banks are at about the same level and the stream is fairly straight. Then we select some tree or bush or stone, or other fixed object on the opposite bank, quite close to the edge, such as A in the picture. On our own side of the stream we mark off a straight line at right angles to the stream as at B C, in continuation of a straight line from A to B. This is done by placing a stick in the ground at B immediately opposite to A, and in moving back to C, taking care to keep the stick always exactly in front of the bush at A. We can mark the straight line B C either by laying a string on the ground, if we have one, or by putting stones at short intervals.



An easy way to measure the width of a river

Now from some point, such as D, not far from B, we mark a line D E at right angles to B C. To get the line exactly at right angles we proceed as shown in the smaller diagram on this page. We measure off, say, two feet on either side of D in the line B C. This gives us the points X and Y. Then we take a stick—a fairly straight branch of a tree will do very well—and holding one end at X, which we use as a centre, we describe an arc of a circle. Now putting the end of the stick at Y, we again describe an arc, and the point Z is where the arcs cut one another. At this point Z we place a stick in the ground, and another stick at D, and then moving along so that in our vision we always keep one stick exactly in front of the other, we are able to mark the line D E as we did the line B C. D E should be measured to about 30 feet, and we should mark the point F at two-thirds the distance, that is, at 20 feet, and put a stick in the ground. Now from E we mark another line at right angles to D E, and we continue this till we come to a point G, where, looking across to our landmark on the other side of the stream—the bush at A—we see the stick at F exactly in front of it. Now, with practically no trouble at all, we can find the width of the river, for we have only to work a simple proportion problem. As the line E F is to F D, so is E G to D A. D F is 20 feet, E F is 10 feet, and we will suppose that E G is 8 feet. Then our problem stands like this: As 10 : 20 :: 8 : D A = 16 feet. From this figure we must deduct the distance B D, which we find, by measuring, is, say, 3 feet, and we have 13 feet as the width of the stream. This may not seem very interesting, but if the boys who read this page will try it for themselves they will find it quite a fascinating occupation for a fine afternoon. Of course, for practice we do not need a river; we can measure the width of a road or field.

THE MYSTERIOUS BOTTLE OF WATER

A very amusing trick can be played upon a friend with the simple means of an ordinary glass bottle of any size or shape. For preference the bottle should be black or dark green, and we get a few holes made in the bottom of the bottle with a glazier's diamond. If we cannot do this for ourselves, we can easily ask some glazier to do it for us.

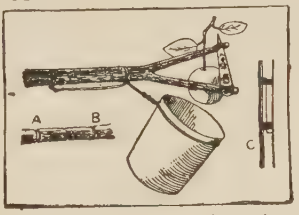
Then, as soon as the bottle is prepared, we place it in a large jug or pail of water, with the neck only above the surface. We now fill the bottle with water right up to the brim, and cork it very tightly.

The trick is to give the bottle to a friend, and tell him that he will not be able to draw the cork or unscrew the stopper without spilling all the water from the bottle. Of course, he declares he can do the task asked, and proceeds to uncork the bottle. But so soon as he does so the air gets in at the top, and the water flows freely through the holes at the bottom, greatly to our friend's surprise.

HINTS AND TRICKS FOR ODD MOMENTS

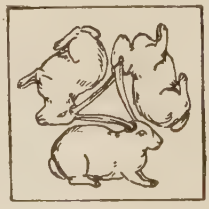
AN EASILY-MADE APPLE-PICKER

It is quite easy to make an ingenious apple-picker that will save us a lot of time and trouble when we are gathering the fruit in the orchard or garden. It spoils the apples to knock or shake them down, and it takes a long time to move our ladder about and climb all over the branches to reach every apple. But by means of the simple arrangement shown in the picture we can gather the apples carefully and well. We get a forked stick, and across the fork we tie an old knife-blade, after sharpening the edge. Then we cut two small grooves in the stick, eight inches apart, as seen in the picture, at A and B. A long piece of fairly stout wire is then twisted round a tin can, and the end is wound round the stick in the grooves. The apple-picker is now ready. If we want it very long, we can make the stick or pole as long as we wish by splicing it in the manner shown at C, binding round the join with wire.



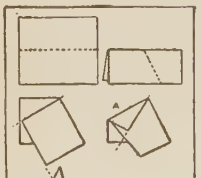
THE RABBITS' EARS

If we were asked to draw three rabbits, and to give them only three ears between them, yet to make them appear as though they really had two ears each, no matter how clever we might be as artists, we should think that an impossible and ridiculous task had been set us. Yet such is not really the case, for, as can be seen by this picture, the drawing can actually be made and the conditions fulfilled. By a skilful arrangement of the three rabbits and the three ears, as shown in the picture, the little animals appear to be quite properly equipped with ears, although they have only three between them.



A STAR MADE WITH ONE CUT

It would at first thought seem to be quite an impossibility to cut a five-pointed star out of a square of paper with one single snip of the scissors, and yet it is quite easy to do so. Everything, of course, depends upon the method of folding the paper before cutting, but if the square of paper be folded exactly as shown in the accompanying diagrams, and then the folded paper be cut with one snip in the direction of the dotted line in the fifth diagram, we shall have a star. In folding the paper at the stage shown in the fourth diagram, so as to get that shown in the fifth, we must fold from the point A across to the right. In all cases fold across the dotted line—that is, when you have the paper opened out flat, as in diagram 1, fold across the dotted line to make diagram 2; then, to get the shape shown in diagram 3, fold across the dotted line in diagram 2, and so on to position 5.

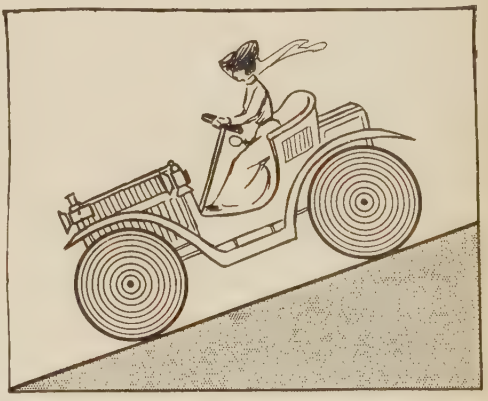


THE MAGIC WRITING

We can have some fun with our friends by causing what seems to be magic writing to appear upon the surface of an ordinary looking-glass when it is breathed upon. Unknown to our friends, we write upon the glass with a piece of French chalk, and then we wipe out the writing with a soft cloth, such as a handkerchief. The writing cannot now be seen, but if we breathe upon the glass it will instantly become visible, and, to those not in the secret, will seem very mysterious and weird indeed.

THE WHEELS THAT TURN

Here is a picture of a motor-car going along a hilly country road. There are no police traps, and the motor is going at a great speed. We can see that it is moving by the way the wheels are going round. We may not think at first that the motor is really going at all, but if we put this book down flat on the table and look steadily at the centre of either wheel, with our eyes about a foot from the book, and then, without raising the book from the table, give it a quick circular motion, the wheels will appear to be going round rapidly. In another place in our book you will find another example of how our eyes deceive us, in spite of the old saying that "seeing is believing."



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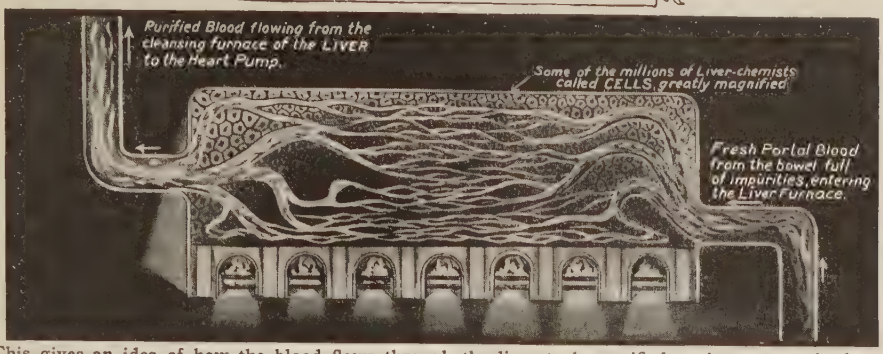

Purified Blood flowing from the cleansing furnace of the LIVER to the Heart Pump.
Some of the millions of Liver-chemists called CELLS, greatly magnified.
Fresh Portal Blood from the bowel full of impurities, entering the Liver Furnace.

This gives an idea of how the blood flows through the liver to be purified on its way to the heart. The great veins subdivide into smaller, which become finer as they go through millions of cells.

CONTINUED FROM PAGE 5914.

THE KITCHEN OF JACK'S HOUSE

THE WONDERFUL CHEMISTS AND THE WORK THEY DO

As we know, Jack's house is a three-storied one, but raised from the ground on Jack's legs, like the houses we see in the East; and so his kitchen, or ground floor, is some distance from the ground, and "rises in the world" as Jack's legs grow.

This kitchen, which is really the lower part of Jack's body, contains many things which Jack would die without, though most of us have never heard of them. All this is perfectly true, and almost new; and for many years to come the progress of knowledge in repairing Jack's house, and in knowing how best to build it up, will largely depend on what we are learning about various things in Jack's kitchen which have been despised hitherto.

Perhaps the strongest of Jack's many strong points is the number of clever chemists he keeps working for him. All the time they are busy making things which Jack's house could not do without, and which make all the difference to Jack himself. We already know that Jack himself lives in his study in his top story, his observatory. The ordinary way of saying this would be that the mind lives in the brain, for, of course, Jack's mind is himself.

But one of many new discoveries is that all sorts and parts of Jack's house are constantly engaged in providing special materials which reach Jack's brain, and make all the difference to it and to him. So true is this that there is, for instance, half-way up the stairway between Jack's top and middle stories, something called the *thyroid,* without which Jack would certainly be an idiot. Thus the people who study the brain intelligently know that they must study the body too; for it is true that the house a man lives in will often make much difference to the sort of man he is.

Thus, for instance, there are two small private chemical laboratories in Jack's kitchen which we know now are the workshops of clever chemists without whom all the work of Jack's house would stand still. When we find a private chemical laboratory in Jack's house we call it a gland, and we find these glands everywhere — those that make the sweat, those that make the saliva, and hundreds more. The little glands in the kitchen lie one pressed to each kidney, and they are called the *adrenal* glands, or adrenals, which simply means "to the kidney." The common rule is that the

various laboratories in the body have a tube, or duct, running from them and carrying whatever they make to wherever it is wanted to go. Thus little ducts run from the salivary glands to the mouth. But these adrenal glands, like several others found in the body, have no ducts.

THE OLD THINGS IN JACK'S HOUSE THAT HAVE JUST BEEN DISCOVERED

These glands are called the ductless glands, and they have long been a puzzle, and some people have declared that they were a sort of lumber, which Jack had inherited from some of his ancestors, who lived in a different style from his own, and had use for it which Jack has not. This idea, that Jack's house is an old curiosity shop, full of rusty and battered relics of Jack's forerunners, has something in it, but a great deal less than many people have supposed; and there are a good many fancied useless heirlooms of Jack's which are a great deal more necessary than his stomach.

The ductless glands are a case in point. The blood runs through them, and as it leaves them it carries something which it had not before, and which makes all the difference to Jack. Or, if that is not so, the blood which comes away is without something which was in it before; and that something is poisonous or dangerous rubbish, which the chemists in the gland have destroyed, usually by burning it up.

THE TUBE THROUGH WHICH POWER COMES TO THE MUSCLES

The adrenal glands belong to the class which make things, and the thing they make was discovered some few years ago by a Japanese doctor in New York. It is carried throughout Jack's house, and its business is to give power to all those servants of Jack called the muscles. Without it the muscles cannot do their work, the blood is not properly pumped into Jack's study, and that means that the ventilation is impaired and Jack gets drowsy and stupid, as we should expect. The working of his brain becomes changed, a doctor would say, because of lack of the adrenal secretion. If the lack continues, Jack dies. This happens in rare cases, when certain microbe burglars break into these glands and smash them, killing the chemists and taking their places.

These are the smallest of the special glands in Jack's kitchen, but in this whole house there are none more important, for Jack's life depends upon them. The adrenals lie pressed against the renal glands, or kidneys. We all know that the kidneys are the laboratories where the chemists work who filter the blood, keeping Jack's water-supply pure.

Only ten years ago we believed that these laboratories were practically just automatic filters, like those we use for keeping the water-supply of our houses pure. But we know better now, for we have discovered that not only are the cells of the kidneys alive, but they are wise and skilful, and the work done by the kidneys is living work, not mechanical. The kidneys are laboratories, containing clever living chemists, upon whose good work Jack's happiness depends. If these chemists are not working well, Jack is "not quite himself," as we say.

THE TINY CHEMISTS WHO MUST NOT BE OVERWORKED

People might say that it does not much matter which way we look at all this. But it matters everything; right thinking always does matter in the long run. If the kidneys were just a sort of grating or sieve, we need not fear as to their behaviour; but if they contain living chemists, then those chemists can be overworked, like anyone else, and if they are too long overworked they will get weary and ill, and will not be able to work at all. A few years ago doctors used freely to give as medicines all sorts of things which were known to make the kidneys work harder — thinking this only meant that the blood was filtered through them more quickly than usual.

But now we know it means that the tiny precious chemists will be overworked; and the new rule is to give nothing to add to their work when they are in difficulties, but to simplify

what Jack eats and what Jack does, and so lighten the work of the chemists until they can recover. This means giving far fewer medicines, which is what the best doctors are doing nowadays. And the same is true of every day, for people are learning that if they overeat they are overworking the chemists in their kidneys, who deal with all rubbish.

THE LARGEST LABORATORY

Many times bigger than both the kidneys and both the adrenals put together is the largest laboratory in Jack's house, called his liver. We all know that our happiness and health largely depend on the chemists in this laboratory, and somebody who was asked: "Is life worth living?" gave an excellent answer with a double meaning: "It depends on the liver." Now, this laboratory is in many ways unlike any other. In the first place, it is huge. Its business requires it to deal with all the blood in Jack's body, and to do so at a great rate. All the millions of millions of cells, or chemists, that make it up appear to be exactly the same, and from one point of view they are by far the cleverest cells in the body.

For instance, they store up iron for Jack's use, and fat for him to burn as fuel, so that this laboratory is also a larder, a filter, and a fireplace too, as we shall see. They catch or filter and melt down the old red cells of his blood, which are the porters, each carrying a little portion of air for ventilating Jack's house.

THE GREAT FIREPLACE IN JACK'S HOUSE

In this and various other ways the liver cells produce a stuff called bile, which has all sorts of uses, *in its place,* but is very undesirable when it gets into the blood, for then it makes Jack bilious — that is, bile-full — and unhappy, and bad-tempered, and yellow-eyed. However, when we have said all this and much more about what the liver does with the blood, we have left out the most important of its duties.

The adrenals contain the chemists who just make a few drops of something powerful and precious. The kidneys contain the careful and discriminating chemists who pounce upon bad things in the blood, and filter them away. The liver contains chemists who pounce upon the bad things in the food, and burn them up. Note that the burning up serves two purposes — a very common trick in Jack's house. It destroys dangerous things, and it keeps Jack's house warm.

But now as to the poisons in Jack's food. The liver is so placed that all the blood running from Jack's bowel, with the food it has picked up there, must pass through the liver before it reaches Jack's great central pump — the heart, and is pumped to every part of Jack's house, and especially to Jack himself. None of Jack's other laboratories are in this position; only this huge one is placed on the line of route, so that every speck of food, however well cooked, except only the fat or oil that is to be used by Jack, must pass the test of the chemists in the liver.

THE SENTINELS WHO GUARD THE WAY TO JACK'S LIVING-ROOMS

Now, the liver is the great gate, or portal, inside Jack's house, through which everything must pass before it is admitted to the master's apartments. There are houses in many parts of the world built round a courtyard; and things may drive into the courtyard and be in the house and yet not in the house. Now, that is the case with the stomach and the bowel, and with the great gateway, with its chemist-sentinels and furnaces, guarding the way to the master's living-rooms. Thus the proper name for this gateway, or portal, is the *portal system.*

Without it Jack would be at once overcome and killed by the poisons in his food. No matter how clever the hall-porter is, no matter what the teeth may do, no matter how clever the cooks who work Jack's ovens, quantities of subtle poisons pass into the blood from the food, and would overpower Jack at once if it were not for the fiery test they have to pass in his portal system. But there the liver-chemists stand, and throw into the fire,

all that they can of the unsuitable or dangerous stuff brought to them by the blood. Now, the same is true here as of the kidneys. We can overwork these faithful and unflinching chemists. They will go on till they drop.

But the time will come when these chemists are done for; sometimes because of some powerful poison which kills them on the spot. But usually it is just a slow wearing out, due to excess of work with too little time for rest — when Jack himself is taking too much rest and doing little work!

That is what happens when people steadily eat too much, especially of rich, heavy, highly flavoured, unnatural foods, crammed with poisons — especially those people who do no work and take none of the exercise which is so bracing to the liver-chemists. For a time all goes well, and we see no harm, for Jack's own rooms are not penetrated, and the chemists stick to their work and give no sign. But the time comes when these faithful servants fail, and then Jack's end is near, for he can neither do without them nor find others to do their work.

Why Nature meant Jack to be a teetotaller

The commonest injury done to the liver is by alcohol, as everybody knows; but it is only within the last five years that we have learnt why alcohol does so much more harm than many other things which the liver seems able to deal with easily. The fact is that alcohol, being an entirely unnatural thing in the food, puzzles the liver. The chemists can make nothing of it, and what they do, when it reaches them, is to send back again in the bile as much of it as they can, while the rest slips through their hands and gets into Jack's private rooms. When the bowel gets the alcohol again, it sends it back to the liver; and we now know that this may go on for days, and all the time, of course, the bowel and the liver are being injured. Several other poisons do the same thing as alcohol, getting on to a circular route from which they can only leak away with difficulty; but of all poisons not naturally occurring in the food, and thus not naturally prepared for in the body, alcohol is, of course, the commonest.

Quite as much might be said about the *pancreas* as about any of these other laboratories. It is a wonderful gland, for it has two kinds of chemist-cells, one kind making a fluid which runs through a tube to the bowel, and another kind — far fewer in number — behaving like the adrenal chemists, and giving to the blood some mysterious product which enables Jack's furnaces to burn up the sugar in the food.

The brain of the kitchen of Jack's house

Then there is the great telephone exchange, lying behind the stomach, which specially controls the whole of Jack's basement, and is in a large measure independent of the three exchanges in his top story. This exchange is often called the brain of this part of Jack's house, so important is it.

We know what Jack's stomach is for, and how it receives food and drink from Jack's front door by means of his "red lane," and how it sends on the food, partly cooked and digested, to the bowel, a tube many feet long, which the blood visits, and from which it carries the food away to the liver. Some of the food is useless, and is left in the bowel, and the liver sends a messenger to move the rubbish along and also to kill any bad microbes which have slipped into his house.

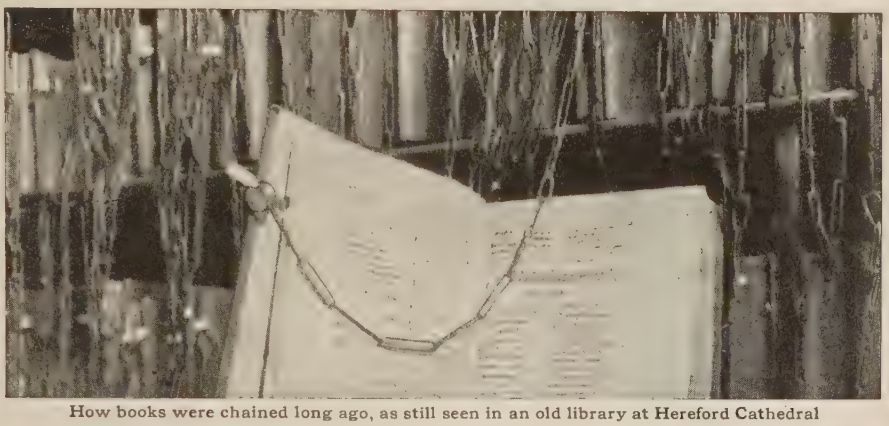
The wonder that can never be told

The stomach and the bowel are studded everywhere with wonder. The stomach has millions of skilful chemists, who are also cooks. Too many cooks do not spoil the broth in this case, for Jack has billions in all. The cooking done outside Jack's house is only the beginning; and there is no kitchen in the world to approach Jack's, and no waiters like the white cells of the blood.

Such are a few of the wonders of Jack's ground floor. Not a thousandth part of what we know has here been told; what we know is not a thousandth part of the whole, nor could the whole ever be told.

CONTINUED ON PAGE 6090.

THE WANDERING GLEEMAN SINGING HIS STORIES IN THE OLDEN TIME



How books were chained long ago, as still seen in an old library at Hereford Cathedral

CONTINUED FROM PAGE 5952.

MEN WHO FIRST WROTE ENGLISH

HOW THE FIRST ENGLISH BOOKS FIXED THE LANGUAGE

THE good King Alfred, last of the early group of Englishmen who began to write books in English for English people, died in 901, and it was not till nearly 500 years more had passed that there arose a really great English writer.

This was Geoffrey Chaucer, who died in the year 1400. In the 500 years since Chaucer died wonderful writers have filled our libraries. Does it not seem strange that for nearly 500 years before him there should have been a blank? From all that time we have not received one book in English that anyone, except a close student of history or language, would care to read now.

But we are mistaken if we think that *no* literature was produced in English, through books or by word of mouth, during those fierce and turbulent times. In the monasteries patient monks, proud of their skill as penmen and painters, were busy with the chronicles of their day. Tale-tellers or harpers wandered about the country from hall to hall, from fair to fair, and from inn to inn, singing or reciting ballads new and old for the amusement of their hosts or companions. Plays, clumsily made from Scriptural incidents or romantic adventures, were acted by the peasantry, or by guilds of workmen in the towns, and thus old-time legends were preserved and extended, together with the doings of kings, religious instruction, and songs, lively or sad. In this way commonplace forms of literature were in circulation, but they did not attain artistic expression.

The popular tales of the time passed from country to country, and were recast, added to, and ornamented as they travelled. English and Welsh stories were written down in France and then brought back into England, or were turned into Latin by monks. Four or five sets of these stories can be distinguished — the Greek accounts of the siege of Troy, the adventures of Alexander the Great, the heroic deeds of the British King Arthur, the history of the French monarch Charlemagne, and later the thoroughly English greenwood experiences of Robin Hood. France was the great workshop for tale-making, and French the language of romance.

That fact brings us to one explanation why English literature was

so barren for centuries. The conquest of England by the Normans made French the language of the palace, the castle, and the law court, while English remained the speech for common life. The native tongue suffered, and all the while it was changing its grammatical form, particularly through blending with French, until it became so different from the old Saxon English that King Alfred could not have read it.

GEOFFREY CHAUCER, WHO FIXED THE LANGUAGE THAT WE SPEAK

Slowly one of the dialects of English — the East Midland, which was spoken in London — gained the mastery, and began to be regarded as standard English. The English kings ceased to feel as Frenchmen. English was spoken more and more by all classes. It was again made the language of the courts of law. The time had come for someone to establish for ever the language, by using it in books that all men would read. The man who did this work was Geoffrey Chaucer.

He was born in London, by the side of the Thames, but *when* is one of the puzzles of history. For centuries the date was believed to be 1328, but more facts keep coming to light, and now we know it could not have been 1328, but probably was 1340, or thereabouts. We know this because in 1357 Chaucer was page to the wife of Prince Lionel, son of Edward III., and she spent about twenty-five dollars of our money buying him a suit of clothes, including a pair of red and black breeches.

THE BOY WHO GREW UP TO BE REMEMBERED FOR EVER

Chaucer was just the man to write poems picturing all the different kinds of people living in his day, for he saw much of the world. His father, a wine merchant, was connected by business with the king's court. As a boy the poet had a sound education, to which his experience as a page added manners and a gentle bearing. While he was yet in his teens he went to France with the army of Edward III., and was taken prisoner, but ransomed. The king himself paid a part of the cost.

Six years later Chaucer was one of the "valets of the king's chamber," and afterwards, when between thirty and forty, he crossed to the Continent seven times on the king's service, and once remained in Italy nearly a year. At the height of his prosperity the poet sat in Parliament, but his fortunes declined with those of his faithful friend John of Gaunt, and he fell into poverty.

Chaucer was not only a man of learning, but a man of the world, trusted by the greatest of his day, and a traveller of wide experience. His writings show the influence of his travels. At first he translated and imitated the French poets. Then he was captivated by Dante, the greatest poet of the Middle Ages, and by Petrarch, whom he probably met in Italy. But though his later poems often borrowed both their form and their subjects from Italian works, they became increasingly English in thought and original in treatment.

CHAUCER'S PICTURES OF HIMSELF IN HIS POEMS

Before asking what kind of man this Chaucer was in appearance, let us learn how to read his verse — an easy matter if we notice two or three points.

Some of his words have passed out of use, or have changed their meaning, and we may have to look for their old meanings in a glossary. Many words were spelt out more fully than now, and had an extra syllable — as *newë* for new, *bookës* for books, and *gamë* for game. Then words borrowed from the French kept the emphasis on the last syllable, as rea*son* for reason, and vir*tue* for virtue. Also *tion* endings are not pronounced as *shon,* but in the French way, as if they had two syllables and were spoken *ce-on.*

In his writings Chaucer has outlined a picture of himself, and we can fill it in from other personal jottings. Stout in body, pleasantly roguish in face, quiet and retiring, though a man of the world, his bright eye sees everything.

Though a student deeply in love with books, he is no hermit, but takes cheerfully whatever life comes to him among his fellow-men, and thanks God for it. He cannot resist the chance of poking quiet fun even at men whom he admires. His best mood comes in response to the call of Spring. Then he

goes out of doors, and is charmed by the flowers, and the small birds. Most of all, he loves the modest daisy. Nothing but death, he says, can take the love of this flower from his heart.

This is how this gentle writer is invited to step forward and show himself among the pilgrims of his "Canterbury Tales."

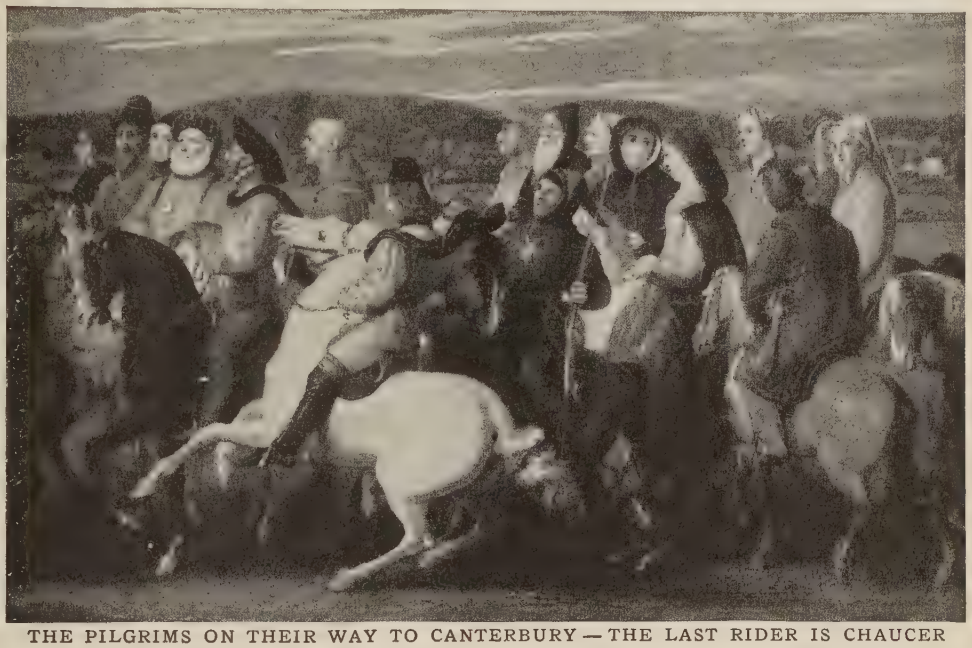
Thou lookest as thou wouldest find an hare,
For ever upon the ground I see thee stare.
Approach more near, and look up merrily!
Now 'ware you, sirs, and let this man have place.
He in the waist is shapen as well as I.
This were no poppet in an arm to embrace
For any woman. Small and fair of face,
He seemeth elvish in his countenance.

In another poem he is described as buried in his books when his day's business is over.

But of thy very neighboures
That dwelleth almost at thy doors,
Thou hearest neither that nor this;
For when thy labour done all is,
And thou hast made thy reckonings,
Instead of rest and newe things,
Thou goest to thy house anon,
And almost dumb as any stone,
Thou sittest at another book,
Till fully dazed is thy look.

Below Chaucer again views himself among his books. Remember that *lite* means little, *fowls* means birds, and devotion is pronounced *de-vo-ci-on.*

And as for me although my wit be lite
On bookës for to read I me delight,
And to them give I faith and full credence,
And in my heart have them in reverence,
So heartily that there be gamë none
That from my bookës maketh me to goon,
Save certainly that when the month of May
Is comen, and I hear the small fowls sing,
And that the flowerës ginnen for to spring,
Farewell my books and my devotion.



THE PILGRIMS ON THEIR WAY TO CANTERBURY — THE LAST RIDER IS CHAUCER

The poet's writings fill seven hundred pages of close print, but the poems that picture him for us at his best are a collection called "The Canterbury Tales," which he had not finished when he died.

The plan of these tales gave the poet freedom to choose characters from the rich, the middle classes, and the poor, and bring them together under circumstances that made them friendly, yet left them natural and independent.

A company of about thirty men and women, the poet imagines, have met on an April day at the Tabard Inn, in Southwark, over the Thames from London, to start on a pilgrimage to the

tomb of Thomas à Becket at Canterbury. They made a merry group, bent on enjoyment as well as religious duty; and the landlord of the inn, a jovial, managing fellow, volunteers to act as their guide. To pass the time pleasantly as they travel on horseback at a walking pace, he proposes that each pilgrim shall tell two stories on the way to Canterbury, and two on the return journey. Whoever tells the best story, the landlord being the judge, is to be entertained at supper by the rest of the company when they return to the Tabard. The poet describes each of the pilgrims, and writes the stories they tell, but only twenty-four. Before they reached Canterbury the tales broke off, owing to the poet's death, and we do not hear which story won the prize.

CAXTON SHOWING BOOK TO THE ABBOT OF WESTMINSTER

In these tales, supposed to be told by all kinds of people, the manner in which people lived in the Middle Ages is unrolled before our eyes like a vast panorama. We see it just as it was, sometimes gentle and romantic, sometimes brutal, cunning, and vulgar, with good and evil so mixed that we do not know whether to laugh most or lament most at the sight. You can feel that Chaucer greatly enjoyed telling these stories, for all the while he was full of fun and high spirits. He could not help making fun of himself, as when called forward to tell his own story, he started a long, romantic rhyme of love, "Sir Thopas," such as he had in his youth translated from the French, and the landlord stopped him abruptly by exclaiming, "No more of this!"

What a mixed company it is that gathers under the guidance of the jolly innkeeper! There is the knight, who has ridden through many lands to fight for love and chivalry and honour, freedom and courtesy, and who yet, in his bearing, is "as meek as is a maid." With him is his son, a curly-headed lad of twenty, his dress as gay as a flower garden, his mind full of love and romance, but not in sadness, for —

> Singing he was and fluting all the day,
> He was as fresh as in the month of May.

As a squire the young man has "borne him well" in France and the Low Countries, and, like the knight, is a gentleman in heart and bearing.

> Courteous he was, lowly and serviceable,
> And carved before his father at the table.

The knight and squire are attended by an honest yeoman, bow in hand. The

Church contributes a group of characters, the chief among them being a prioress, who is a model of the best manners of the day, eating with cleanness and delicacy, and wiping her lips carefully "when she drunken hath her draught." Besides, there is a worldly-minded, sport-loving monk; a wandering friar, the best beggar in the whole countryside; a red-faced tax-collector; a pardoner; and a devoted parish minister, who, staff in hand, walks in all weathers from end to end of his parish, visiting great and small in their sickness, teaching Christ's Gospel, "but first he followed it himself." Though poor, this parson is "rich in holy thought and work."

Benign he was and wonder diligent,
And in adversity full patient,
To drawen souls to heaven by fairness,
By good example was his busyness.

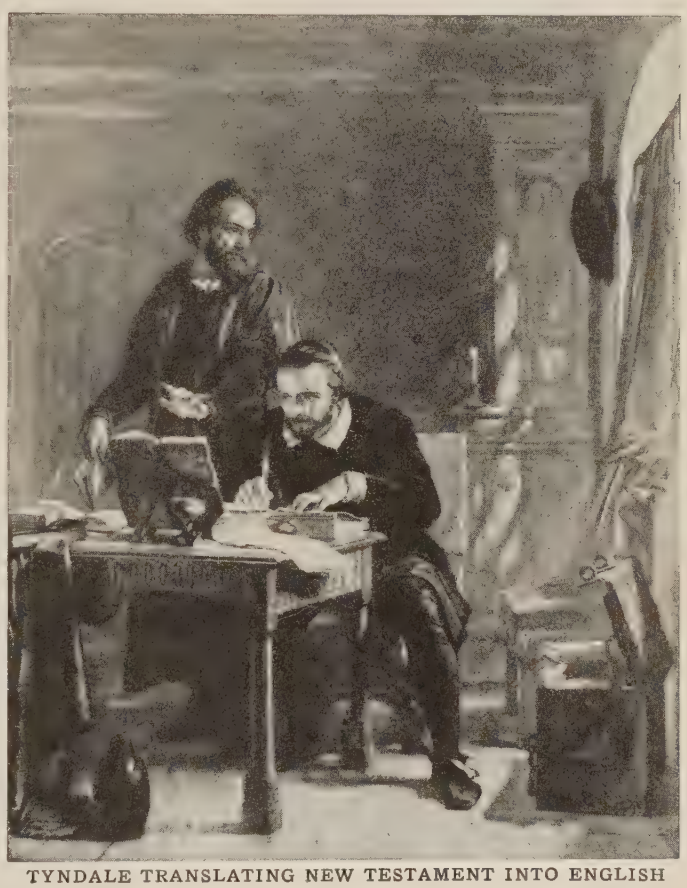
The professions provide a doctor, with more than a suspicion of quackery in his talk; a lawyer, who is not so busy as he tries to appear; and a pale, threadbare student from Oxford, who would rather have books than gay clothes. His mind is bent wholly on study, and he speaks with well-formed sentences.

Sounding in moral virtue was his speech,
And gladly would he learn and gladly teach.

The landed classes sent to the pilgrim group a farmer; commerce sent a merchant; and among the rest were a miller, a ploughman, a sailor, a carpenter, a weaver, a dyer, and a wife of Bath, who had been married five times. The whole range of manners, of good taste and of bad taste, is covered by these living figures.

Most of the tales were borrowed from Italian writers, but in turning them into English Chaucer gave them freshness and even new meanings. Good nature and a quiet humour played over all his writing, but he taught serious natural duties like contentment:

Look up on high, and thank thy God for all,



TYNDALE TRANSLATING NEW TESTAMENT INTO ENGLISH

and a still loftier duty of faithfulness to the best thoughts that visit us:

Hold the high way, and let thy soul thee lead.

Caxton, who printed books in the English tongue seventy-seven years after Chaucer's death, printed some of the poet's works seventy-eight years after his death, and introduced them by

saying: "We ought to give singular laud (praise) unto that noble and great philosopher who may well have the name of laureate-poet." With that judgment all later users of the English language agree, for Geoffrey Chaucer not only wrote pleasant poems, but pictured the people of his own day, and fixed our tongue, which had been changing constantly.

THE TALES TOLD BY THE COMMON FOLK

While Chaucer was writing poems for fashionable people to read in expensively copied books, the common folk were telling each other tales in ballads — simple rhymes, often stumbling along. Then again they move our hearts with strong, clear picture-words, or haunt us with recurring phrases or refrains. When printing was invented these ballads were among the first poetry circulated everywhere, and one set, that told the story of the bold outlaw Robin Hood and his merry men, was so well known that a poet, Michael Drayton, writing a century later, said of Robin:

In this our spacious isle, I think there is not one
But he hath heard some talk of him and Little John.

We can read, as an example, the ballad recording the tradition that Robin Hood was bled to death, when ill, by a treacherous kinswoman, the prioress of Kirklees, or Kirkley, nunnery. It shows how limping the metre often was, and yet how sad, how vivid, and how powerful the simple verses became when feeling was strong in them.

HOW CAXTON SAVED THE STORY OF KING ARTHUR FOR THE WORLD

Though Geoffrey Chaucer may be said to have fixed our language, and to have given English poetry its modern form, he did not leave us a model for prose writing. That was slowly made during the 150 years that followed his death.

Half-way through that period printing was introduced by William Caxton. The first English printer was a man of some learning. Thus he not only printed Chaucer as his favourite poet, but selected Sir Thomas Malory's "Morte d'Arthur" as an example of prose. That book, written in 1470 and printed in 1485, has come to us only through Caxton's printing. The manuscript copies are lost. In it Malory tells, in clear, simple, romantic, and enchanting English, all the legends that cluster round the memory of the British King Arthur, and it remains to this day one of the loveliest books of all the literatures of the world, a storehouse in which the poets, from Milton to the present, have sought for themes.

As the years passed, the Bible, with its nobility of thought, its unrivalled variety of style — narrative, history, drama, impassioned oratory, purest poetry, and simplest talk — became the text-book of the people. John Wycliffe, a learned Oxford preacher, had superintended its translation nearly a century before the introduction of printing, and no fewer than 170 manuscripts of his version are still in existence.

HOW TYNDALE SET THE MODEL OF GOOD ENGLISH

It was not, however, till fifty years after Caxton's press was set up in Westminster that William Tyndale produced the translation that set the standard of English prose. A quarter of a century later the Prayer Book was written. About the same time — that is, 1550 — a thoughtful book on the government of men and how they should live together, Sir Thomas More's "Utopia," was translated from Latin into English by Ralph Robinson, and these four books, the Bible, the Prayer Book, the "Morte d'Arthur," and "Utopia," may be accepted as carrying prose writing in English nearer to perfection than it had been carried by Chaucer in the writing of verse.

When Chaucer died, in the year 1400, English poetry had attained a charm unknown in prose. When Queen Mary came to the throne, in 1553, English prose had acquired a grace, sweetness, and strength that it has scarcely surpassed since, while in poetry a stately edifice has been built on the plain foundations that Geoffrey Chaucer laid.

THE PRIEST WHO LOVED THE INDIANS

AWAY in France in an old chateau in the city of Laon, which stands on the banks of the river Oise, a little boy named Jacques Marquette was born some hundreds of years ago. Jacques was a round-cheeked, joyous-hearted little fellow with generous, impulsive ways which won the hearts of all about him. The servants adored him, and Jacques' mother thought there was no other boy like him in all the great, wide world. Madame Marquette was a devout Catholic, and she would often entertain Jacques for hours by telling him tales of the brave Jesuit Fathers who went out into far away lands to carry the gospel of Jesus Christ to the heathen. Little Jacques, sitting on a hassock at his mother's feet and propping his curly head against her knee would listen with shining eyes and parted lips to the stories of daring and self-sacrifice.

"Perhaps some day you may become a Jesuit Father, who knows?" she would say.

The years passed and the rosy-cheeked little boy had grown into a tall young man, with earnest eyes. His mother's cherished dream had come true. Jacques was a Jesuit priest. One day the young priest said good-bye to all his friends and set sail across the Atlantic for the great, new land of America. Travelling in those days was very slow, and it was many months before the young priest reached the little mission on Lake Superior in the heart of the wilderness, to which he had been appointed. Once there, however, Father Marquette set to work with vigour and enthusiasm. He began to learn the languages of the various Indian tribes, and then in his earnest, simple way told them how Christ had come down to earth to die so that all men might be saved.

The Indians listened perplexedly. At first they did not understand this white man with the long black robe, who went about with a strange look in his eyes and who talked about a Manitou who was all love. He did not seem like the white men they had met before. He did not seem to want anything for himself, and he would travel many miles in the middle of the night to help a sick child with his simple remedies. Gradually the Indians began to trust, and then to love him. They listened, too, to what he had to teach, for surely one who had no ends of his own to gain must speak the truth.

By and by the fame of the "Young White Father" spread abroad, and Indians from the more southern tribes began to come to hear him preach. One day there arrived at Father Marquette's little mission a delegation of Indians from the tribe of the Illinois, who lived far away on the "Great River." The strangers listened to Father Marquette as he preached, and then they presented themselves before him.

"Let the Young White Father come to the people of the Illinois," they grunted.

"I cannot leave my mission now, but I will surely come," promised Father Marquette, his heart aglow within him at the thought of this wonderful opportunity.

From this time on Father Marquette made it his special prayer that the way might be opened to him to go to the Indians of the Illinois. One day there arrived in the camp a small band of men under the leadership of a young man named Joliet, who said that he was on his way to explore the "Great River." It seemed so like a direct answer to his prayer that Father Marquette was filled with jubilant thanksgiving, and he eagerly prepared to join the expedition.

The journey began on one bright spring morning late in May. The adventurers launched their canoes and paddled gaily over the sparkling waters of Lake Michigan to Green Bay, where they found an encampment of the Wild Oats Indians. The Indians came running down to the shore and crowded around the white men. Father Marquette was able to talk to them in their own language, and he told them that his party was bound for the "Great

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River." The Indians listened to his words in polite silence, but when he paused, they began to gesticulate wildly, all talking excitedly at once.

"What are they saying?" asked Joliet, curiously.

"They say," said Father Marquette, "that we will surely be killed. They say that there are wild Indians and great water monsters and a horrible river demon." He turned to the Indians and spoke with a ring of triumph in his voice: "People of the Wild Oats," he said, "the white men are not afraid of river monsters or demons, for they have with them always the spirit of the great Manitou, who will let no harm happen to them."

Then the white men bade good-bye to the wondering Indians, and set out down the Fox River. The upper course of the stream was so shallow that the adventurers were obliged to carry their canoes and walk along the bed of the river. The way was rough, and often the sharp stones cut through the men's moccasins to their feet, but the party was in the highest spirits. As they marched sturdily along, now and again one of them would break into a rollicking French song, and the others would take up the refrain in a resounding chorus. Joliet and his followers were filled with excitement at the prospect of adventure, and Father Marquette was radiantly happy in the thought that he was going into a strange land, perhaps to death, on his Master's business.

Presently they were floating down the pleasant waters of the Wisconsin River, and on June 17th they reached the Mississippi River, "with a joy that I cannot express," writes the enthusiastic young missionary in his journal.

Day after day, week after week, they journeyed down the "Great River." They encountered strange scenery, strange animals, strange birds and strange tribes of Indians of the interior. Wherever they came upon an Indian encampment, Father Marquette preached the gospel of Jesus Christ. "I know not whether they understood what I told them of God and the things which concerned their salvation. But it is a seed cast in the earth, which must bear its fruit in season," he wrote in his diary with his engaging hopefulness.

A thing that is strange to record compared to every other narrative of the time is that there was no quarrel between captain and priest. Father Marquette and Captain Joliet got along famously. The captain respected the shrewdness and good judgment of the young priest and often sought his advice. Although intent upon making converts of the Indians, Father Marquette was also keenly interested in the exploration end of the expedition. He tasted the mineral waters of Wisconsin; he tested on his paddle the coloured clay used by the Shawnee Indians for colouring their skins; and he cheerfully wielded his canoe paddle with the best of the men.

As they got further and further down the Mississippi, the heat became intense and the mosquitoes were so thick that they were almost unbearable. The explorers found that the Indians on the lower river slept on high scaffoldings under which they built a smudge fire, and they too were obliged to resort to this method to escape the swarms of stinging insects. At last two or three days' journey would have brought them to the mouth of the Mississippi, but Joliet had heard that the Spaniards were in possession of the land around the Gulf of Mexico, and after a consultation with his men, he decided to turn back.

On the way back they passed through the village of the Kaskaskia Indians, who begged Father Marquette to remain with them and establish a mission. But the young priest's health had been seriously affected by the tropical heat of the midsummer sun and the unwholesome, moist climate of the lower Mississippi, and he was now very ill. He was very loath to leave the Kaskaskia without telling them of his "glad tidings," but his companions refused to leave him behind in the wilderness, and Father Marquette was too weak to protest, but he promised to return to the interior as soon as he was well.

As soon as he was able to travel, he set out with a little band of his convert Indians to keep his promise to the

people of the Kaskaskia, but he got no further than the present site of Chicago when he was again attacked by his terrible disease, so he was obliged to stop on his journey and spend the winter among the Indians of this region. As in every place where he had gone, he soon won the devotion of the Indians of the Chicago tribes. From all around they came to listen to the inspired words of the "Young White Priest." The Indians believed in Father Marquette and loved him as they believed in and loved no other white man. And why? Because he believed in them and loved them as no other white man had ever done. He saw no guile, nor treachery in the Indians. Where others saw only bloody, repulsive savages, he saw men — red in truth — but with unselfish, hospitable, generous natures and a deep religious sentiment.

In the spring of 1675, Father Marquette was again stronger, and he went on to the Kaskaskia to establish the mission, as he had promised. Here his disease again overtook him, and he set out for Canada, accompanied by a handful of his Indian friends, to die among his own people. Day by day, as they hurried northward, the young missionary grew weaker, until at last, when they reached Lake Michigan, he knew that the end was near. He had met all his pains cheerfully and uncomplainingly, and now he faced death with a sort of exultant joy — joy that he should be allowed to die in his Master's cause. Quite simply he told his Indians that he was glad to go, and spoke of the joy that awaited him. Then he asked to be carried to a little hillock that overlooked the lake.

"I thank you for your patience with me in my sickness," he said. "I am sorry to have given you so much trouble."

Then he told them to go to sleep and get a little rest. He would call them when he felt that death was coming. For a while he remained in silent prayer. Presently he called, and there in the wilderness, surrounded by a handful of devoted Indian converts, Father Marquette died at the age of thirty-eight.

In the Capitol at Washington there stands a statue erected by the State of Wisconsin in honour of the brave missionary priest, Father Jacques Marquette, who was one of the first white men to explore the Mississippi River.

CONTINUED ON PAGE 6123

LOOKING INTO THE VAST OCEAN OF SAND

This picture of an Arab traveller gives us some conception of the awful loneliness of the Desert, with its vast ocean of sand stretching far out beyond the horizon.

CONTINUED FROM PAGE 5940.

THE PEOPLES OF THE DESERT

THE WILD, FREE RACES OF THE EARTH AT HOME

A BURNING expanse of red, grey, brown, or white sand, thinly dotted with oases of wells and grass, and diversified with stony and rocky tracts — that is the scene which springs up in memory or imagination at the very mention of deserts. The mind at once flies to Arabia, the typical and historic land of wilderness desolation, or to the vast African Sahara, for these two marvellous regions have always been, above all others, representative of the strange features of the desert.

But the world's great deserts are vaster and more varied than most of us realise. There are many great uninhabited wastes in the world, caused mostly by the almost utter lack of rain. This accounts for the existence of the great Sahara, in North Africa, which starts at Cape Nun and stretches across the continent to the banks of the Nile, and then on the east of that river forms the Libyan Desert.

The most extensive of all the Asiatic wildernesses is the Mongolian Desert of Gobi. Arizona, one of the largest states of our own country, contains one of the biggest deserts of the New World. Other regions are arid and barren, bearing nothing but sage-bush and cactus. And one of the most dreaded of the deserts is that in the interior of Australia.

After all, however, the Arabian and African wilderness regions must ever exercise the most fascinating influence on the minds of civilised peoples. Consider the ways, for example, of the members of the various tribes of the great Arab race. These Arabs are mainly divided into two sections — those who inhabit towns, some on the borders of the desert, others within the tremendous wastes; and those who restlessly and constantly wander here and there. Now, the nomad Bedouin is very interesting. He has a hard life, but it is a very healthful one, and in some respects it is a happy existence, with its absolute freedom from town restraints, its enjoyment of the pure and sweet desert air, and its unfettered communion with Nature.

Two of the largest and wealthiest of these tribes into which these wild freemen are divided are the famous Anaeze and the Shommar. Both are dreaded by travellers, and among them are many persistent robbers. These tribes and several oth-

ers are constantly warring, one against the other, and the settled existence to which we are accustomed in civilised countries is unknown to them. All except one particular tribe possess splendid horses. Carrying very long spears, often measuring twelve feet, pointed with steel lances, these Bedouin riding on their lovely steeds, very often milk-white, present a magnificent spectacle, especially when indulging in any of the picturesque games in which they delight. For they are, of course, fond of galloping and racing, and they like also the exercises in which they play at war.

These Arab steeds are so well trained as rarely to need an iron bit. The ordinary Arab bridle is almost the same as our halter-strap. The desert horse seems to understand its master, and almost to interpret his will by a movement or touch.

THE WEALTH OF THE WANDERING ARABS

The Arab term Bedouin means desert-dweller, and the traveller must wonder how these Bedouin tribes can exist at all in a vast sandy or rocky waste. Of course, there are great sandy areas, but, for the most part, the great Arabian wilderness is a desert simply in the sense that it is destitute of settled population.

If all were absolutely barren, these nomad Arabs could not live and prosper, and grow wealthy as some of the sheikhs do. The fact is that immense tracts of the soil are excellent. In springtime, after a heavy rainfall, Northern Arabia becomes like an American prairie over large areas. Lovely wild flowers spring up that would delight the heart of a botanist. This explains why the wandering Bedouin are rich in the possession of thousands of cattle, of camels, of horses, of sheep, of goats.

Dr. Swemer, who lives at Bahrein, in the Pearl Islands inhabited by Arabs, and who has travelled much as a devoted missionary among the desert tribes, says: "I am sure you can still find some of these Bedouin chiefs who, like Job, have seven thousand sheep, and three thousand camels, and a great household."

Just as in the time of Job, thousands of years ago, so do these children of the desert to-day dwell in jet-black tents, made always of goat's hair, which forms a perfect waterproof covering. These tents are square or oblong in shape.

THE STRANGE SPECTACLE OF A DESERT CAMP

An Arab desert camp is a singular spectacle, but it is well worth visiting. For the journey into the desert from some outlying spot various saddle-bags must be taken. These are duly fitted on to the back of a mule. They contain medicines, changes of light clothing, and some cheap but pretty ornaments and toys for the Arab women and children, who will be delighted with such gifts. The visitor rides on the top of the baggage. Of course, there must be as many mules as visitors. The guide walks barefooted, for he prefers to carry his sandals tucked in his girdle.

Presently we come to shepherds and flocks of sheep, with whom the guide chats for a moment or two. They direct his course, for the camps never remain more than a month in one spot. At last a camp is reached. It is sure to be pitched in some hollow, the deepest that can be found, for two reasons. One of these is the necessity of concealment from hostile bands of fellow-Arabs; the other is the advantage of shelter from the hot winds that blow over the desert plains.

THE DELIGHTFUL COURTESY OF THE ARAB TRIBES

The great encampment is carefully arranged. Some tribes spread their tents in a great square in rows; others prefer a picturesque oval. One feature never is lacking — the symbol of the authority of the sheikh. This little king always plants his spear in front of his tent. Just behind it is the section curtained off for the reception of guests. And how effusive, and even pathetic, is the hospitality of these Arabs, robbers and assassins though some of them are! Their kind cour-

THE HOMES OF THE PEOPLE OF THE DESERT

A Bisharin tent in the Sahara Desert

An Indian hut in the Arizona Desert

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A group of Bisharin tribesmen in the great Sahara Desert

The City of Tunis, with its flat roofs, which largely take the place of gardens

A miserable village in the Mongolian Desert of Gobi, with a fine Buddhist temple close by

The picturesque market place at Assiout, on the Nile, with the mosque in the centre

SCENES AND PERILS OF THE DESERT TRAVELLER

The mirage — an imaginary oasis suddenly appearing to a group of travellers

A caravan crossing the Sahara, with "tents" on the camels for the women travellers

A terrible sandstorm in the great Australian desert

tesy to friendly visitors never fails, even though in the desert they would rob the very same folks without the slightest compunction, and perhaps slay them if resistance were offered. But never is a Bedouin of the wilderness known to violate the beautiful law of hospitality. Out of the burning sunshine the weary traveller is welcomed. The women hasten to bring him water to cool his head. A great bowl of camel's milk is offered before any questions are asked. At night a fat kid or lamb will be killed, and a feast will be provided without stint.

THE MAGIC JUG IN THE DESERT

There are real luxuries in the Arab tents. It is true the tent is not an elaborate structure, but it is solidly made, and contains everything needful. The tents are spacious, for they will accommodate considerable quantities of several sorts of grain, chaff, fruits, dried fish, and wood. There is also ample room for refuge for fowls, goats, some cows, and a horse or two. The great main room has in the centre a large hollow which serves as the fireplace. The smoke must find its way out as best it can, so in time the tent becomes blacker and blacker; indeed, the old Bible phrase which speaks of the black tents of Kedar is as applicable now as then.

One great blessing is the famous porous jug. All who have stayed in a tropical clime know what this means. The Arabs who live and work in towns make water-jugs and jars out of porous earth. These are an unspeakable benediction to the people, for they have no ice and no refrigerators. The wells are never very deep, and the water comes from a long distance. Thus, were it not for the water-jugs of this kind, cold water would be unknown. How, then, is it cooled? Very simply. If poured into one of these earthen pots and hung for a few minutes in the wind, the effect is astonishing, for the beverage becomes deliciously cold and refreshing.

WHAT THE PEOPLE EAT AND DRINK

Palatable and wholesome is the desert fare. There are luxuries also in the food, though we should hardly relish the favourite dishes of the tribes, such as leben, the peculiar sour milk of mares and camels, which in Turkey is called yoghurt; pilaf, which is rice beautifully cooked and containing little shreds of lamb, or kid, or chicken. But when the Arabs make a great feast in the desert, they roast a sheep or goat whole on red-hot stones. Hard biscuits in the shape of rings, called kak, are much relished, and so is the peculiar butter called ghee. When the Arabs have to carry water about on their rovings, they do so in great leathern bottles made of the whole skins of sheep and goats.

One beverage that is enjoyed in the desert cannot be excelled anywhere in the world. Coffee was first brought to Arabia from Abyssinia about the year 1400 by a pilgrim, whose tomb in Yemen is an object of veneration; and the seeds planted in Yemen produce the Mocha coffee which is so famous.

DATES AND SUGAR-CANE

The chief of all foods among the desert peoples is the date, and the most precious thing that grows in the countries inhabited by these tribes is the date-palm, one of the noblest and most graceful of all trees. The Arabs of the desert eat much wild honey, and will feed abundantly on locusts when they can; they also feast eagerly on the big lizards that dart about among stony places, and do not disdain even the jerboa, a kind of desert rat. But the great article of diet is the date, without which the Arab of the wilds could hardly subsist. A joyous time is the festival known in the springtime as the Marriage of the Date Palms, when the soft spring breezes waft the pollen from the male to the female blossoms.

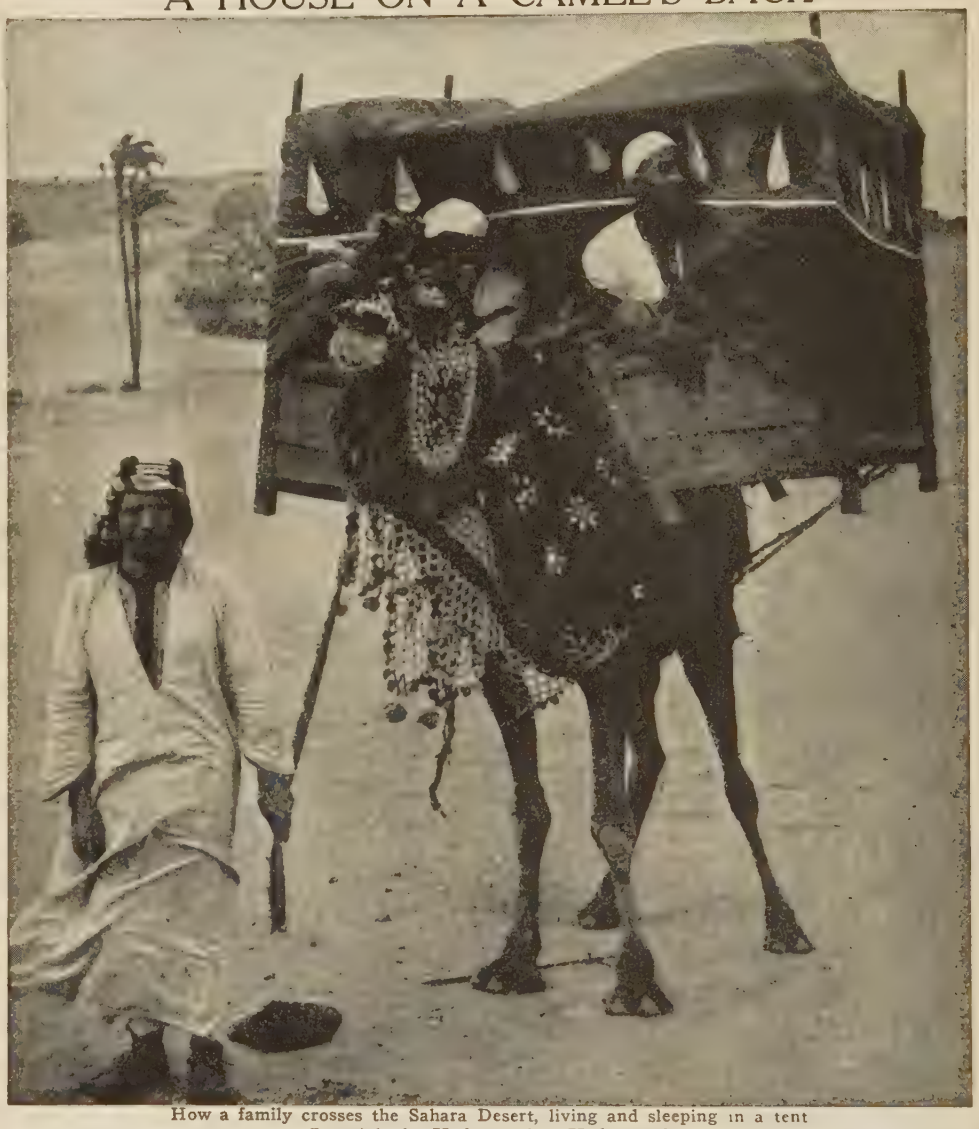
Arab children are never happier than when they are sucking sugar-cane, which is cut into pieces and sold by the knot — that is to say, by the length of the stick from one knot to the next. But nothing is so abundant as dates. Sometimes for many weeks nothing else will be eaten in an Arab tent, and even the donkeys and camels are fed on this fruit. Outside many a tent at

AN ARAB SCHOOL & AN ARAB WORKSHOP

A Mohammedan school in Egypt, where the boys wear their hats and take off their shoes

Arabs at work: using their fingers and toes, they carve wood with amazing rapidity into beautiful shapes, making screens, boxes, and cabinets, which go all over the world

A HOUSE ON A CAMEL'S BACK



How a family crosses the Sahara Desert, living and sleeping in a tent

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A pathetic scene in the desert: a camel sinking in the sand of the terrible Desert of Gobi

this moment will be Arab boys and girls playing games with date-stones on the smooth sands. None of the date-stones are thrown away, for they are ground up into a coarse kind of meal for cattle food. Indeed, nothing is wasted that belongs to the date-palm. The fragrant blossoms make a favourite beverage, and if the fruit that has not been consumed turns stale and somewhat musty, it is converted into date vinegar. The leaves are woven into strings, fans, mats, and baskets, and the long, thin, strong branches are made up by the carpenters in the towns into chairs, cradles, cages, beds, boats, and countless other things.

THE BREAKING UP OF A CAMP

One event in the desert is always exciting. This is the breaking up of a camp for a migration. When a great tribe shifts its quarters, all possible preparations are made on the previous day, and, very early in the morning, everything is in motion for the great departure.

Tents are taken down and packed, and soon the country is full of camels and flocks and herds and Arabs. But sometimes a very striking thing occurs. Ten or a dozen camels will be arranged in procession at considerable intervals from each other. To the back of each camel are fastened four upright poles, which support a canopy. On this erection rides an Arab girl, prostrate on her breast. These girls are the sisters of heroes — men who have won fame in battle. No others are ever allowed to ride thus in what is called a *merkab*.

THE SOLEMN MAJESTY OF A SEA OF SAND

The Bedouin Arabs are, of course, ignorant in one sense, for few can read and write, but they are exceedingly devout. They are temperate, for as Moslems they never taste intoxicants. There are no mosques in the deserts, of course, but these children of the sunny wilderness are much given to prayer. The first chapter of the Koran is recited in every tent five times a day, the worshippers prostrating themselves toward Mecca.

On that sea of sand the sunbeams smite the tent-dwellers, and at night the stars let down their golden anchors of a milder light, but Nature knows no pity apart from the mercy of Allah. So before Him these sons of Ishmael bow five times daily on the yellow floor of the vast shrine which is their only mosque, over which stretches the stupendous dome of the azure heavens. "We are always wandering, and God is everywhere." And proud are those Bedouin Arabs who have been able to join the pilgrim caravans for the journey to Mecca, to the tomb of Mohammed, and who, having safely returned, are honoured as Hadjis, the most coveted title in the Mohammedan world.

THE VISION OF THE DESERT SKY

Caravans — what scenes this word conjures up! The longest and most perilous caravan expeditions are those which cross the great Sahara, and this vast African desert has its charms, its unspeakable fascinations, its indescribable phenomena. One of these is the mirage, the reflection in the sky which has puzzled so many travellers in ages past. It is often seen in both Arabia and Africa. Egypt is very familiar with it, so is the Soudan. Sometimes, when the morning is slightly cloudy and not extremely hot, this vision is most wonderfully displayed. The appearance of wide, stagnant lakes near the horizon is the most usual sight. Sometimes hills and mountains are seen high in the sky. A mound or building which is very far away, and altogether beyond the reach of natural sight, is raised up into the heavens on the screen of sky, magnified enormously and brought quite close.

A traveller riding in the Arabian desert from Bagdad to Babylon was perplexed by seeing what looked like the great ruin Akarkuf, though he knew that it was more than thirty miles distant across the sands of the desert. In reality what he saw was simply an old well, only a few hundred yards from where he stood wondering. Distressing have been the experiences of the members of great camel caravans crossing the Sahara, parched with thirst, under skies burning like brass,

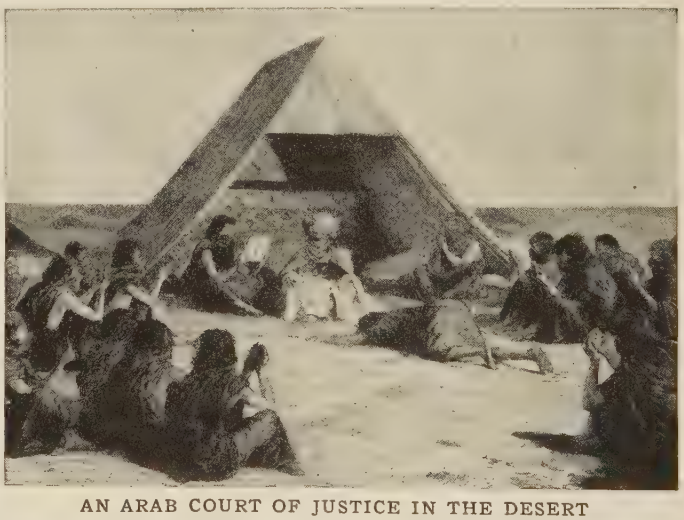
suddenly plunged into ecstasy at the full view of palm-trees forming a lovely oasis at a little distance — for palm-trees always mean a delicious well close by. The travellers have in some sad instances rushed on to find that they had been mocked by a mirage, and men and beasts have perished of thirst. Their skeletons have been added to the number which bleach upon the sands under the bright sky.

The towns that border the deserts often lie in the centre of surrounding barren solitudes, as does Damascus, the oldest city on earth, where are lovely gardens, watered by fountains from Abana and Pharpar, the twin rivers that rush down from the snows of Lebanon. But outside of Damascus all is a wilderness, for those two streams lose their way shortly on the plain, are both sucked in by the deep sands, and vanish entirely.

Spots of enchantment in the Libyan Desert of Africa are the lovely oases, great patches of vegetation caused by the presence of water-springs. Four very large and beautiful oases are inhabited by the great and famous tribe of Mugrebi Arabs, who love their gardens and villages embowered in date-palm groves, with sparkling fountains ever refreshing them. The ancients called these oases the Islands of the Blessed. All around lies the terrible desert, one of the most dreaded perils of which is that hot wind called by the Arabs the simoon. When this fierce and burning blast sweeps across the vast wastes it is deadly in its effect. Everyone in a caravan must, in order to escape alive, kneel in the sand with the mouth close to the ground, and, if possible, in the shelter of a camel, a roll of bedding or even a saddle. The air in these sheltered places close to the ground is not quite so full of sand.

The Arabs of the towns look down contemptuously on their uncultured Bedouin brethren, though they are of the same race. They are afraid of the desert, and will never willingly venture into it. The villagers round Nineveh and Babylon look across the solemn wilderness from their very doors. They hear the jackals filling the night with weird howlings, and think ghostly creatures are prowling round.

But these town-dwellers are gifted and clever. They excel in some refined species of handiwork, especially in carpentering and various sorts of woodwork. That delicate and ornate latticework which is seen in windows, doors, boxes, and cabinets is highly prized. Glass for windows is rarely used in Arabia excepting by Europeans, or by a few Arab families who have learned some of the Western ways. But in Arab houses are to be seen some of the loveliest windows that can be imagined.



AN ARAB COURT OF JUSTICE IN THE DESERT

The Arabs call a window *shibaak*, which means a network. The joiner fashions a most delicate fabric out of date-palm wood or bamboo, making little round bars, and fitting these to each other in a vast variety of decorative designs. Through this fine latticework light and air come into the room, but none can look through upon the inmates from the outside world.

CONTINUED ON PAGE 6136

A striking picture of horses hard at work. — "The Forest Team," from painting by N. H. J. Baird

CONTINUED FROM PAGE 5931.

THE STORY OF THE HORSE

WHO tamed the first wild horse? Nobody knows. We look round the world and see many kinds of horses, but we can never get far back to the beginning of the time when this splendid creature gave up the freedom of the wild and became one of the natural benefactors of mankind.

We think of the lonely wastes of the American continent, and remember that the Indians, splendid riders, have a type of horse which seems peculiarly their own. Were not the Indians the first tamers of the horse in that lone, quiet land of which Cæsar never knew? No, they were not, for when Cæsar lived, though he had horses, there was not a single horse in the whole of America.

Horses there had been, and elephants, too, but it was millions of years ago, and they had all perished and become fossils long before we can trace man in America. Horses were reintroduced after the discovery of the continent by Columbus, and when the first European horsemen, taken there by Cortes, were seen by the natives, the latter thought that the riders were some terrible monsters. The Indians and the natives of South America, who are among the finest horsemen in the world, use horses descended from those carried there in ships.

The Arab is a distinct type of horse, beautiful, intelligent, and faithful. Surely, then, this must be a species of horse evolved in Arabia, and trained by the Arabs. But again we are wrong. We know that there was a time, not very long ago, when the Arabs had no horses or asses, but rode to battle on camels.

Moreover, the naturalist is able to prove, fairly clearly, that the lovely Arab horses are descended from the ugly wild horses of Asia, of which droves exist in freedom to this day. We cannot say that these wild horses have always been wild and free. It is likely that there have always been many free, but that their numbers have been increased from time to time by horses escaped from man.

We must seek further, then, for the first tamers of the horse. There is no doubt that among the very first men to tame horses were the Turkomans and the Mongols. From the lands of these Asiatic peoples the horse was taken to India, and through Persia to Assyria, onwards to Egypt and down to Arabia, where

the breed reached its crowning glory until the thoroughbred, descended from the Arab, arose to challenge its Eastern relative in beauty and speed, though not in endurance and docility.

While the Turkomans and the Mongols were taming horses in Asia, men of the Stone Age in Europe were taming horses in the West, and we have to believe that the very early Celts brought tame horses to Great Britain long before the Romans arrived.

So far, we have been thinking of horses which do not differ greatly in appearance from those which can be caught wild on the steppes of Asia to-day. But these, though they go back for thousands of years, are still comparatively a modern type. There have been horses like the present-day wild ones as far back as we are able to trace human records. Upon pieces of bone, and upon the walls of the dwellings of the old cave men, we find sketches of horses like these wild horses we see in the Zoo to-day.

THE WILD HORSES OF OLDEN TIME

These prehistoric drawings show us a feature of the horse which we instantly notice when we see the modern wild horse. The old-time animal had a thick, heavy head and stunted neck. The average pony which runs in a butcher's cart to-day would have been a miracle of beauty to old-time man.

These changes have come about in the horse since it entered into partnership with man. Man kept the handsomest and swiftest horses, and the others have died out, except where they have been left to run wild.

Man, as lord of the animal world, has ever found the horse, next to the dog, or with the dog, his most useful and trusted friend. But the horse had been millions of years preparing for him. When we first find the horse, hidden away in Nature's store-chest, along with myriads of other fossil evidences of the past, it is a little creature no bigger than a fox, with five-toed feet in front and four-toed feet behind.

Can we realise that the four legs and feet of a horse are the counterpart of the human hands and feet? So they are. The horse had fingers and thumbs as we have, but it used them as toes instead. To-day he is a four-hoofed animal. Well, his hoofs are simply the new forms of what were originally the nails of his middle fingers or toes.

WHEN THE FIRST HORSE WANDERED INTO OUR COUNTRY

It was necessary for him, in the marshy lands in which he lived, to have feet which could expand and keep him from sinking. But Nature was slowly changing the character of the earth. The great moist tropical forests, in whose warm, swampy glades the horse had fed, gave place slowly to harder, firmer land, with fewer trees and greater open spaces. The horse's spreading toes, instead of being a help to him, gradually became a hindrance. First the two outer toes grew smaller and smaller until they vanished, then the second and the fourth also disappeared. Naturalists have found in the United States skeletons or parts of skeletons showing nearly every step in his development. Why he died out no one knows. Perhaps because of the arrival of the ice sheet of which you are told on page 12.

When he had three toes to each forefoot he first wandered into Britain. There were no men there then; the horse was first. England was then joined to Europe, and in the southern part of the land he grew to be quite a big horse; but, as he wandered farther and farther north, he grew smaller as the fare upon which he fed grew rougher and more scarce.

THE BEGINNING OF THE PARTNERSHIP BETWEEN HORSE AND MAN

Age followed age, and the conditions to which the horse had once been accustomed no more returned. He had, therefore, to continue changing, and he managed in time to drop two more toes, leaving him only his middle toe or finger, and this one became enclosed in a tough, horny material which we now call the hoof.

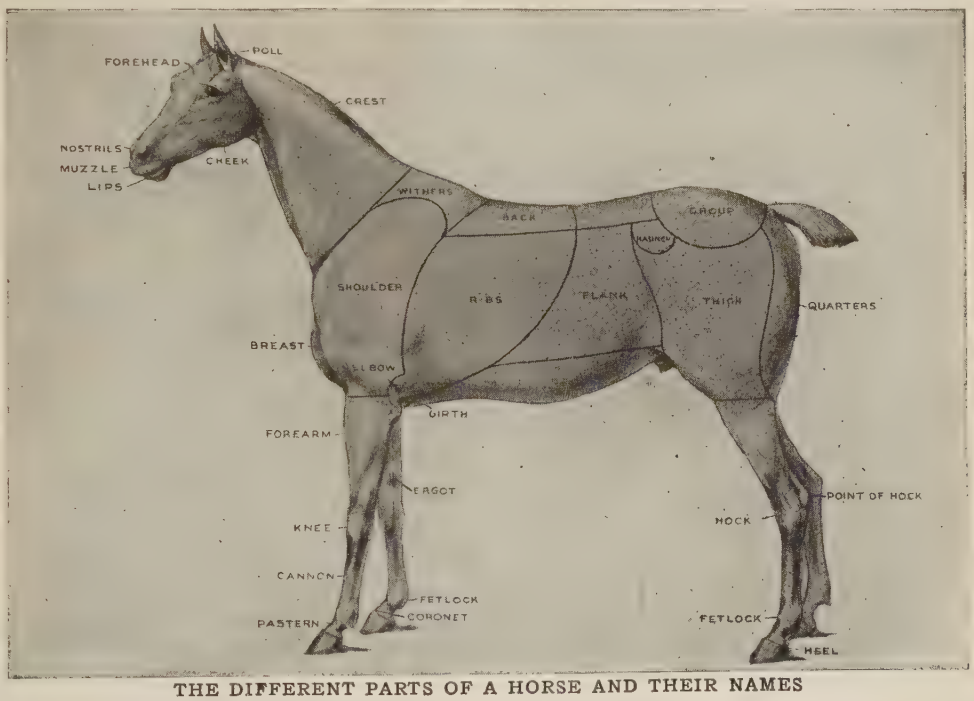
It was after the horse had completed this great change that he and man became acquainted. The horse was at first simply a source of food to our rough and savage ancestors in Europe.

They had no thought of harnessing the horse for service. So the acquaintance began with man hunting the horse, and adding another enemy to the many which this creature had. Every big flesh-eating animal was against the horse, which travelled in large bands for protection.

The cleverest horses, those which had the best brains, and used them to greatest advantage, survived with the strongest and fleetest; the stupid ones blundered into traps of men, or into the jaws of animal enemies. But another change came over the horse as altered circumstances of life affected it. From being long-necked and neat-headed, it became short, stock-necked, and heavy-headed, with powerful teeth and massive jaws. It had to change the shape of its head to accommodate its increasingly powerful jaws, which developed with the coarser food that the horse had to eat.

We get an extraordinary example among present-day horses of the way in which the circumstances of life affect them. Horses accustomed to abundant food and an easy life are, as a class, long in the neck, with light, pretty heads. When their life is harder, their heads become coarse, with big, powerful jaws.

Now, if we take the ponies of Arctic Norway and those of Iceland, we should, perhaps, expect to find them much the same; but there is a distinct difference. Many Norwegian ponies are as coarse about the head and neck as the wild horses. The reason is that they have a hard life in winter, with tough, harsh fodder to eat, demanding the use of powerful jaws. But the Iceland ponies have fine heads and slim, graceful necks, thanks to the fact that, when winter comes, they eat fish in place of the hard and scanty fare on which the Norwegians have to live.



THE DIFFERENT PARTS OF A HORSE AND THEIR NAMES

It is natural for man to love animals, and there would be times when ancient man would trap a foal with its mother, and perhaps his children would beg to have it spared as a pet. It would grow up as a fondling, and, except in time of famine, there would be no more thought of eating the pet colt than of eating the tamed dog. How men first came to harness the

THE TOWN HORSE AND THE COUNTRY HORSE

"THE JOY OF LIFE"—A PICTURE OF COUNTRY HORSES, BY LUCY KEMP-WELCH

"HARD LABOUR"—A WONDERFUL PHOTOGRAPH OF A TOWN HORSE

This striking photograph of a horse in a city street is taken from "The Amateur Photographer;" the picture of the country horses is published by permission of the Autotype Fine Art Company, Limited.

FRIENDS IN SCOTLAND'S FARTHEST NORTH

"VIKINGS" — THE SPLENDID TYPE OF HORSES IN THE NORTH OF SCOTLAND
From the painting by Edwin Douglas, by permission of the Autotype Fine Art Company, Limited

SHAGGY COMRADES — THREE LITTLE PONIES FROM THE SHETLAND ISLES
From a photograph by W. Reid

horse, to ride it and drive it, we cannot tell. A horse which had lived with human beings from its infancy would be easily broken to service. We know that it all happened very long ago, for cave drawings, which we believe to be fifteen thousand years old, show us pictures of the horse wearing what appears to be harness.

THE COMING OF THE GREAT CHANGE

From that early date the horse became the servant of man. His cousin, the donkey, was claimed, too, but his more distant relatives, the rhinoceros and the tapir, escaped service, and have escaped to this day. We must not get the idea that the three-toed horses of Great Britain ever entered the service of man, or that their descendants survived. They all passed away, in company with the tiger, the mammoth, the great cave bears, the hyenas, and giant reptiles which once lorded it over England, and the first domesticated horses were brought over from other parts of Europe.

From his association with man the horse has been improving, both in body and brain. As we see from the sculptures picturing scenes from the life of ancient Greece, the Greeks had two types of horses. There were the thick-set, thick-necked, heavy-headed horses with stiff, upright manes — what we call hog-maned horses — and with arched noses of the type that we now call Roman. The Greeks had also, but in smaller numbers, the fine, stylish horses of the Arab type, and it is this latter type which has gradually made its way into all the great centres of civilisation.

THE BEST HORSES MEN EVER HAD

Our biggest horses of to-day are bigger than any that the old-time world knew; our fleetest horses are swifter than any that the ancients had. Careful breeding has brought into existence a horse with greater breadth between the eyes than the original type possessed, and when we see a horse thus distinguished we know that he is gifted with intelligence, and, very often, gentle temper. But the temper of a horse cannot always be guaranteed.

Horses are like men and dogs; some of the best bred and best cared-for have the fiercest tempers. Race-horses are striking examples of the uncertain effect of high living and unswerving kindness. They can be taught tricks much more easily than less well-bred horses, but they learn tricks of their own just as readily.

One of the most famous of these horses was owned by King Edward, and called Diamond Jubilee. It had the finest of stables, the best of food, plenty of exercise; it was watched as carefully and kept as comfortably as if it had been human; but, in spite of all this, the horse was so vicious that little could be done with it. When it went out to race, it would swing its head round and try to pull its jockey out of the saddle. It could run like the wind, if it liked, but it generally preferred not to run.

THE BOY WHO TAMED A KING'S HORSE

Everything possible was tried, but nobody could ride it. But there was a little boy who used to groom and feed the horse, and this boy Diamond Jubilee seemed really to love. The King was persuaded to let the boy ride it in a race, and the horse, carrying this boy, seemed almost to fly to victory. The boy could do anything he liked with the fiery, untamable animal, but nobody else could manage it.

Those of us who are brought in contact with these splendid animals should note that they are like the elephant in recalling both kindness and unkindness. A little Shetland pony once so badly misconducted himself that he was whipped lightly — the first and only time. For weeks afterwards when the pony saw the man who had whipped him, he would throw up his little head, wince, and give a peculiar sniff, as though he expected a blow, and would tremble and try to hide in his stable, until the man who had punished him felt miserable at the sight, and had to make many journeys to the stable, and hunt up many well-washed carrots, to make peace with the animal.

OUT FOR A WALK WHEN THE WIND BLOWS

"AN APRIL DAY"— BY LUCY KEMP-WELCH

RIDING HORSES IN THE WILD SEA WAVES—A SEASIDE SCENE 2,000 YEARS AGO

Greek warriors riding their war-horses through the surf — "on the sea-beat coast, where hardy Thracians tame the savage horse"

This splendid picture, suggestive of the magnificent friezes of ancient Greece, is by Mr. W. Frank Calderon, owner of the copyright.

THE MORNING AFTER THE BATTLE

"THE SOLITARY HORSE AND ITS FALLEN MASTER" — BY LUCY KEMP-WELCH

A FAMOUS PICTURE BY LANDSEER, ENGLAND'S MOST FAMOUS ANIMAL PAINTER

These pathetic figures of the war-horse — the innocent sufferer in man's quarrels — are by the greatest English animal painter of the past and the greatest English horse painter of to-day.

There is much genuine fun in all horses and ponies that have been well treated. They love to show off and pretend to do outrageous things simply to gain attention and to bring to them someone they love. One huge chestnut fellow, when he hears a familiar voice near his stable or sees anyone walking near, will take his halter-rope in his teeth and rattle the wooden ball against the manger, as if he were knocking at a door. He will pretend to bite his halter-rope to pieces, kick at his manger, thump with his haunches at the side of the stable — all to make a friend enter his stable and have a little talk to him.

Another little pony, left alone in his paddock, is as good as gold, but if he sees anyone at hand he will pretend to nibble the trees, or to worry the hen-coop in which some chickens and their mother are housed. He means no harm — he ceases his mischief at once if no one takes any notice of him; but to gain attention he will try any trick he can think of, even to playing football round the paddock with his water-bucket.

THE HORSE'S GREAT LOVE FOR ITS MASTER

Horses are just as fond of human society as cats and dogs, and Mr. W. H. Hudson, who has written a charming book on the animal life of part of South America, finds that the horses on the great ranches there do a most pathetic thing — they go to their master's houses to die. Very often there, as in other countries, they are carelessly, even harshly, used, but Mr. Hudson thinks that they go to their master's houses because they remember that, after the strain and burden of a day's work, their labour ceases at the house, and they think that their illness is part of their work and will end at the same place.

Some of us, after reading Mr. Hudson's story, can suggest another theory. When a horse is sick, it is always treated by its owner. Horses know that man is their only doctor. When these horses feel death creeping upon them in the form of an illness, what is more natural than that they turn to their master's home for the relief which he alone can afford?

Because horses, when frightened, run madly away, and dash themselves to death against a brick wall or over a cliff, it is argued that they have not much intelligence. But do not human beings in a panic act as madly, when a cry of "fire" is raised in a crowded theatre?

THE PONY THAT WENT TO THE VILLAGE BLACKSMITH

We can forgive a good many frightened runaways for the sake of one little example of reasoning power shown by a pony. This small animal was shod at a village blacksmith's, and ran about the roads with its master, until one day one of its shoes came off. In the absence of its master it trotted off to the blacksmith's. The smith, seeing nothing more than a strayed pony, drove it out of his shop, and turned it towards home.

In a minute or so the pony returned, and calmly walked up to the place in which it had stood to be shod. The smith looked, as a smith would, at the horse's hoofs for an explanation. He saw that a shoe was missing, and, guessing the cause of the pony's visit, he put on a shoe. Then he turned the pony loose. It required no driving this time. It trotted off to its field with its head in the air, as if proud of having made its wishes understood.

THE PONY THAT LEARNED A LESSON

A horse's memory is a good aid to curing it of a fault. A gentleman has an intelligent pony which, when in a lazy mood, used to "jib." It would stand quite still or move backwards. One day it started to back its trap in the direction of a shallow pond, and no coaxing would make it go forward.

Its owner did not beat it. Seeing that the pony was in one of its most stubborn moods, he gave it its head, and let it calmly back itself into the pond. Then, when it had had a good ducking, he had it unharnessed and pulled out of the water, and the trap after it. The pony learned its lesson. Though eight years have passed it has never jibbed since.

CONTINUED ON PAGE 6147.

WHAT THE STORY TELLS US

PERHAPS we do not know that Canada is every year drawing immigrants from almost every country in the world. They come from Europe, from Asia, and from the United States. Every year many prosperous American citizens sell all their goods and move to Canada, where they can get good land almost for the asking. A majority of the immigrants go to the new West, which is developing so rapidly. Though it is growing population is still scattered and it can support a much larger number. You will also learn below of the coming of the Chinese, Japanese, Hindus, and the queer people known as the Doukhobors.

THE CANADIAN IMMIGRANT

FOR a century Canada had endeavoured to attract settlers to develop the wonderful resources of the country. Notwithstanding these efforts many of the immigrants simply stopped on their way to the United States. Not only was Canada not holding the immigrants, it was also losing its native born population. In 1896, a new policy was adopted and an active campaign was started for attracting attention to the Dominion in general and to the Northwest in particular.

THE ADVERTISING CAMPAIGN

The Canadian government began to advertise in Europe and in the United States. Every means possible was adopted to draw attention to the opportunity for settlement in Canada. Immigration agencies were established in the British Isles, in many countries of Europe and in the United States. The greatest activity was shown in Great Britain, where thousands of dollars were spent. Literature setting forth the great resources of Canada was mailed to all agricultural labourers in the United Kingdom. Well-mounted maps of Canada were presented to every school in the British Isles. Medals were offered in five hundred schools for best essays on Canada. Lectures illustrated with Canadian views were given throughout the agricultural districts. Specially constructed busses filled with collections of Canadian products in charge of capable men made tours throughout the country. Advertisements were inserted in the papers read by the farming classes. In the United States, agencies were established in many of the leading cities. Thousands of pamphlets dealing with the resources of Canada were mailed to desirable immigrants. Advertisements were inserted in thousands of American newspapers. Liberal bonuses were given for obtaining immigrants. No country in the world's history ever carried on a more energetic and a more systematic campaign for obtaining desirable settlers.

THE HOMESTEAD

The government has pursued a very generous policy in the granting of public lands. Any person who is the sole head of a family, or any male over eighteen years of age may homestead a quarter section of one hundred and sixty acres of available Dominion land in Manitoba, Saskatchewan or Alberta. By the payment of a fee of ten dollars at the time application for homestead entry is made and with six months residence and cultivation of the land in each of three succeeding years, a deed may be obtained from the Dominion government.

THE UNDESIRABLE IMMIGRANT

The aim of Canada has been to introduce farmers, agricultural labourers and others who would not com-

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pete with those engaged in the skilled trades. A large part of the immigration from Great Britain had been from the cities. Many of these were not fitted to engage in farm labour; in addition many preferred to settle in the cities. The attraction of this class was due to Canada's vigorous advertising campaign, to the activity of societies, and to the eagerness of steamship agents to get traffic. The Canadian officials made complaints of this practice which for some time prevailed in England. For example, the Metropolitan Aid Society aided many criminals to go to Canada, with a view to giving them the chance of a fresh start. Many philanthropic societies assisted in landing thousands of penniless immigrants on Canadian shores. The British Welcome League of Toronto between March and November, 1907, assisted 5,200 immigrants, of whom seventy-eight per cent. were either penniless or on the borderland. The coming of city-dwellers brought up questions concerning the quality of immigration. As a result of several investigations a revision was made in the laws and they are enforced with greater rigidity. The aim is to debar all those not suited to Canadian conditions.

The Immigration Law

The law says that those who are feeble-minded or insane shall not land. Nor does it allow the deaf, dumb, blind or cripples to come in unless they belong to families which are able to take care of them. Those who have certain diseases are also shut out, and a strong effort is also made to keep out all whose moral character is not good. Any one who commits a crime within two years after coming to Canada may be sent out. Some of these points seem very hard, but Canada feels that she must protect herself.

Money Requirements

Each immigrant, male or female, must have twenty-five dollars besides a ticket or else money enough to buy a ticket to the place he intends to go. The head of the family must have twenty-five dollars over and above transportation for each member of the family to destination, and also twelve dollars and fifty cents for each child over five and under eighteen years. Between the first of November and the first of March these sums are doubled. This rule is not strictly enforced if the immigrant is alone, is strong and healthy and has the promise of a position, or when he or she is going to join a relative already settled in Canada. Railway "navvies," farm labourers, and domestic servants need not have any money. The immigrants to Canada have been of many different nationalities and colours. Europeans from almost every country, Asiatics and Americans have all poured into the new country, and there has been some race-feeling.

The Chinese

The Chinese began to come to British Columbia about 1858, but it was not until the late seventies that any organised opposition to their entry was made. Several laws against them were passed by the government of British Columbia, but they were declared unconstitutional. Finally the matter was taken up by the Dominion government and, in 1885, an entrance tax of fifty dollars was imposed. This did not end the complaints, and petitions were yearly sent to the Federal government urging further restriction. In 1900 the tax was increased to one hundred dollars and three years later to five hundred. One half of the tax is paid to British Columbia.

The Japanese Come

The coming of the Japanese dates from about 1896. While the Chinese do not compete, to any extent, with skilled white labour, there is some competition in the case of the Japanese. The Japanese are quick to learn English and show more readiness than the Chinese to become naturalised. There are nine thousand Japanese in British Columbia, of whom more than one third are naturalised British subjects. In opening up the Pacific coast the sturdy little brown men have worked on the fishing grounds, in the sawmills, in the logging camps and on the farms. Nearly one half of the fishermen belong to this race. Under the treaty of 1905 be-

THE WONDERFUL CANADIAN WEST

The scenery in the mountains of Western Canada compares in beauty and grandeur with that in Switzerland. This is Upper Bow Valley, from Tunnel Mountain at Banff in Alberta. There are thousands of views among the Canadian Rockies equally beautiful and impressive.

On another page we show another view of Winnipeg, the magic city of Manitoba. Winnipeg is a distributing centre of immigrants, and the chief market place for a wide region, now rapidly filling with farmers, many of whom are from the Western part of the United States.

Pictures Copyright, 1906, by H. C. White Co.

tween Canada and Japan, the subjects of either country were granted full rights of entry into the territories of the other. At the same time, there was an understanding that Japan would regulate the number of Japanese labourers coming into Canada. The Japanese government has kept its word, and very few now come to Canada.

THE HINDUS

The Hindus began coming to British Columbia about 1904. With the coming of twenty-two hundred in 1907 some ill-feeling arose. The sudden increase was due to the distribution through certain rural districts of India of glowing accounts of the wages paid in British Columbia, and to certain steamship agents who wished to make profit on tickets sold. The matter was taken up with the British government. No contract labourers from India are now allowed to enter Canada. All immigrants must have made a continuous journey from the country of origin. All Asiatic immigrants, with the exception of the Japanese, must possess on landing at least two hundred dollars.

THE DOUKHOBORS

A number of ignorant Russian peasants came to Western Canada during the winter and spring of 1899, in order that they might be allowed to follow their own religious beliefs. Three years later they attracted world-wide attention by their famous pilgrimage. They came under the influence of fanatics who preached that they should give up labour and all their goods and go forth like Christ and preach the Gospel. They handed over their money to the nearest government agent, cattle and horses were allowed to go free, but were rounded up and taken in charge by the mounted police. They cut the metal hooks and eyes from their clothes, set everything in order in their homes, and started on a pilgrimage which soon reached proportions that alarmed the authorities. The government took stern measures and the motley crowd was brought back to their homes. At this time, Peter Verigin, their leader, who had completed a term of exile in Siberia, reached Canada. Under his skilful leadership, order was soon restored and the people have remained quietly on the land.

Everything is held in common. They live in villages of one to two hundred people, and there are nearly fifty of these. In the villages, each cottage is surrounded by a garden. A large communal barn is for the farming implements, while one or two large stables furnish shelter for the horses, cattle, sheep and pigs. All work in the fields. The working day is from five o'clock in the morning until eight in the evening. The time is divided into three shifts of five hours each. One set of men and horses go to work at five and stop at ten for five hours' rest. A new shift works from ten till three, when the first resumes work.

Verigin, the leader, is the active manager of the Doukhobors. He is the custodian of the fund, to which each man, woman and child contributes his or her earnings. He sells the products and buys at wholesale the goods needed. Two men and one woman delegate are sent from each village to the general meeting. This meeting is opened with the Lord's Prayer and closed with the singing of Psalms. This meeting looks carefully after money matters and discusses any business which may come up.

During the summer of 1899, for the want of horses, women took their place and drew the ploughs. Religious societies assisted them through the winter and the government furnished the seed for the first crop. See what they have done in a little more than ten years. To-day they have horses, cattle and sheep in great numbers. They own steam-ploughs, twenty-five steam-threshing outfits, grist-mills, saw-mills, blacksmith and carpenter shops and grain elevators. This last year they raised over a million and a half bushels of wheat, oats, barley and flax.

THE AMERICANS

The American in Canada can scarcely be called an immigrant; he is rather a solid citizen. He considers that West-

THE HAPPY LIFE OF THE ROLLING PRAIRIE

A FAMILY ARRIVING ON THE PRAIRIE TO SET UP A HOMESTEAD

NEW SETTLERS AT WORK, TRANSFORMING WILDERNESS INTO A FRUITFUL GARDEN

A FARM ON THE PRAIRIE AFTER SETTLERS HAVE WORKED UPON IT FOR TWO YEARS

The rolling prairie of Western Canada has vast hoards of wealth hidden in its fertile soil, and as the land becomes more and more cultivated this wealth will be realised in huge crops of wheat and fruit.

These pictures are published by the courtesy of "Canada," a weekly newspaper published in London

ern Canada offers him better opportunities than his own state, so he comes with all of his possessions. Canadians and Americans alike pass from one citizenship to another with far less friction than an Englishman can be transplanted to Canadian or American soil. Since the first movement toward Canada began, about 1898, it has gone forward with a rush. During the year ending March, 1912, nearly forty per cent. of the entire immigration into Canada came from the United States. Every state in the Union was represented in the rush to the fertile wheat lands of the North. The average amount of wealth for every man, woman and child was over eleven hundred dollars. From 1901 to 1912 734,000 Americans, bringing with them over half a billion dollars in gold and effects, have sought homes in Canada. The farmers in Western United States sell their land for a high price, and move across the line, where they can get land as good very cheap, if indeed they have to pay for it at all. The Canadians welcome the Americans, who soon adapt themselves to their new surroundings and become good Canadian citizens. These families are, however, a great loss to the United States.

Where the immigrants come from

For the year ending March, 1912, three out of every four immigrants spoke the English language, and came from the British Isles or the United States. No efforts are made to get immigrants from the south of Europe, who are attracted more to the United States than to Canada.

Nevertheless, in the immigration to Canada fifty-four nationalities are represented. The Chinese are found in every province, while few Japanese come east of Winnipeg. The Hindus are rarely seen beyond British Columbia and Alberta. Greeks, Italians and Russian Jews flock to the large towns and cities. Thousands of Galicians are unskilled labourers in the western provinces. Mormons, Swiss, French, Icelanders, Swedes, Doukhobors, Germans, Norwegians, Danes, Finns and the English races, including the American, form the farming classes of the western prairies.

Winnipeg, the melting pot

With the one exception of Johannesburg Winnipeg is said to hear more languages spoken on its streets than any other city in the world. The city is the great distributing centre for immigrants. Near the Canadian Pacific Railroad station is the new Immigration Reception Hall, big enough to provide temporary sleeping room and housekeeping facilities for one thousand people. The Bible may be purchased in sixty distinct tongues and more than thirty languages are spoken on the streets of the city. With excellent day and evening schools, Winnipeg is performing a valuable service in making Canadian citizens out of these strangers.

The immigration policy

Canada has great areas of unoccupied rich fertile plains, and one of the chief aims of her immigration policy is to get suitable settlers for these lands, and to get farm and railroad labourers, and the always needed domestic servants. On the other hand the coming of those who will not make desirable citizens is discouraged, and if necessary the undesirable is debarred. Only those races that will adapt themselves to Canadian conditions are encouraged to come to Canada. Unlike the United States Canada has no contract labour law. On the contrary the evidences of assured employment upon landing count heavily in favour of admission and sometimes will serve as the only basis.

The working of the law

The Canadian law is very flexible. The power conferred on the Governor-General-in-Council is so great that it would be possible through special orders to cut off not only any particular class of immigration but to stop immigration altogether. No country in the world has exercised greater care in the selection of her immigrants and no country has met with greater success in obtaining desirable people.

HOW THE TOUGH SOD IS BROKEN

Much of the prairie land in western Canada has never been ploughed. The roots of the grass and weeds are so matted together that a plough drawn by one or even two horses would be of little service. Here we see six ploughs drawn by an engine. They easily tear apart the stubborn sod, and bury the grass and weeds.

This is a disc plough. The two discs shown in the picture are strong metal plates fastened at an angle. As they revolve they exert immense force and serve the same purpose as the plough shown above, though of course they do not do so much work.

PROSPECTORS FOR GOLD IN CANADA

The search for gold will lead men to go almost anywhere and risk almost any hardship. Here are a lot of prospectors, gathered around what we are told is the leading restaurant in the vicinity. This is near a recent gold-strike in Canada. These men come from every class of society.

This track is wide enough for a horse, but not for a vehicle. All goods must be packed on horseback or carried by men themselves if they cannot afford to buy horses. It is a difficult and expensive means of carrying freight, as the weight a horse can carry over the steep hills is limited.

Pictures from Brown Bros.

DRAWING THE THINGS WE SEE

CONTINUED FROM PAGE 6014.

We are learning to hear the beautiful music that is at the heart of everything. When we all can hear it and love it, then the Golden Age will have come. Many are seeing the dark night change to the beautiful colours of the dawn of this age, and are glad. We all want to see them, too, and to feel the gladness.

We have learned already how important it is to look carefully at the boundary lines, so that our minds may compare them accurately before we begin to draw; and we know that the accurate relation or proportion of line to line—that is, their *values*—forms the alphabet of drawing, or the notes of its music. Now we will consider how to look for shapes.

Fill a narrow-necked bottle with water, and put into it the stems of the leaves or flowers you mean to draw; it would make us dislike our drawing lesson if, when we had finished, there were lying before us bruised and dying plants.

Now take a simple-shaped leaf, and put it before a piece of paper similar to that on which you will draw. Thus we shall receive the same impression from our finished drawing as from seeing the leaf against its background. It also helps us to fix our attention upon the leaf, by shutting away all other objects. Draw the leaf just as you see it; do not draw the outline only, but fill it in with crayon the same colour as the leaf. When you have finished, put your drawing near to the leaf and sit down again, so that you can see the two—the real leaf and your drawing—from the same view that you had when you drew it.

First let us look at the real leaf, and find out exactly what we want to tell others. Notice that the boundary lines are not upright; they curve. Now look at the whole shape, and see whether it is as wide as it is long; or if it be half as wide, or a third, and so on. Then notice where the widest part occurs — at the half of the length, above, or below it. Observe whether the top of the leaf is more rounded or sharper than the bottom. Thus you will have found just where the curve changes from one direction to another; which position is the rounder and which the flatter. This is most important. Look at both sides, and see the shape enclosed by them.

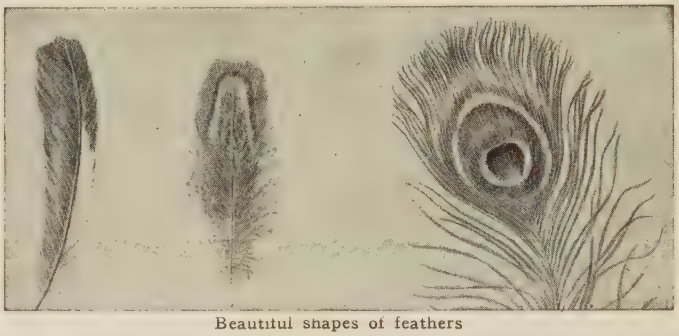
We know now what to look for, and are ready to compare our drawing with the leaf. We must do so in the same way as we considered the leaf.

We must give our eyes time to see, and our minds time to judge quietly and fairly whether we have drawn a faithful portrait. We are beginning to realise that we cannot draw truly until we have definite knowledge of the boundaries of the shapes. Knowledge must come first. Our drawing should be the result of knowledge of shapes gained by examination. A line by itself means nothing. It is quite right wherever it is placed. A line by itself is never wrong. It can only be wrong when placed into position with the fellow-line needed to complete the shape. It is the shape enclosed that is right or wrong. So when we have judged the values or lengths of lines one with another, we must bend all our sight and thought upon making the shape right. When we draw a line we must be watching its fellow.

Shells are beautiful. This is because they have shapes of different sizes, falling side by side.

Take every shell you have which has a spire. Place these in a row, with their mouths facing you and their spires at the top. Notice that these mouths nearly all occur on the right side as they lie before you; that they are rounder and fuller on the mouth or right side than on the left; that the long line on the left ends with a gentle, inward curve to the canal, or lower end of the shell. Now decide the position of the mouth — whether it extends half-way, a

quarter, and so on, across the shell, and how far up. Count the turns of the winding pathway up the spire, and notice how very much it narrows at each turn. Now draw the shells. Watch carefully the *whole shapes*, not the boundaries of them.



Beautiful shapes of feathers

We see how important shapes are. Let us look at the piece of ornament on this page, and its analysis. We see that under these leaves there are lines of music. This is why the decoration pleases us and is like music to us.

To our list of things to draw we will add objects with curves in them—leaves of every kind, shells, butterflies, and feathers.

Now we will consider objects such as boxes and baskets, objects of which we may see two or more sides, the others being turned from us.

Take a cardboard box, and with the crayons colour one side red, another blue, and the top green. Place it on a large piece of white paper, and make a portrait of it on tinted paper just as you see it.

Now let us examine the box.

Which is the largest surface, the blue, the red, or the green? Look carefully from one to the other. When you have decided look at each of the others, and compare them in turn. We know now definitely the relative values of these three shapes—that is, we know which is the largest, which the smallest, and which comes between. Look at your drawing, and see if you have put these shapes into their right places.

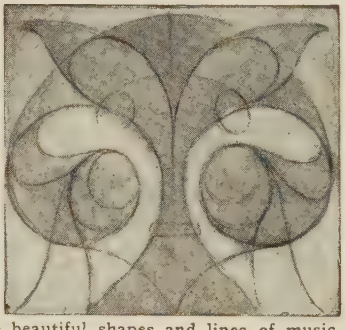
If they are not right, let us find out why. There must be something wrong with their boundary lines. Perhaps their lengths are wrong, or they do not go in the right direction. Suppose you are standing at the corner, between the red and the blue surfaces. Now put out your arms the way the long lines of the red and the blue surfaces go. You do not put out your arms straight with your shoulders. The left arm goes towards the corner of the room; and the right is also forward, but not so much as the left one.

Look at your drawing. You represent the middle line between the red and the blue. Do the lines in the drawing go in the same direction as your arms? Then why not?

If you had put in with the white crayon the shape of the ground on which the box stands, you would not have made this mistake. Now place your drawing near to the box, and sit in your seat again, and compare the two. Does the drawing give us the same impression as the box? Is it like the box? Look from one to the other.

If the shapes are wrong, then we have been strangely unjust. We had before us three shapes to judge. We have not been honest with them. We did not carefully enough compare one with another. So alter this queer portrait, and make another.

We must not forget that in drawing we are dealing with appearances. If we know that a side of an object is really long and wide, but looks small to us because it is turned from us, we must draw it small. If we know that another side of the object is really small, but appears to be the larger because it is turned towards us, then we must make it the larger. This rule is of the greatest importance. We must always be very careful to draw the surfaces *just the size that we see them*, neither greater nor smaller, notwithstanding our knowledge of what their true size may really be.



In the right-hand picture we see the beautiful shapes and lines of music underlying the decoration on the left

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A PLAY LESSON

Suppose the beautiful princess is going to see her friend at the house in the lovely garden. Her friend will, of course, want to be polite, and to do all possible honour to the gracious princess, and will hurry

to bring the chairs out into the garden.

Now set to work and draw those chairs. Some must face us, some will be sideways, some will have their backs to us. But one has been knocked down by a clumsy maid.

THE BEAUTIFUL SHAPES OF LEAVES

Let us draw this one too. You say that you are not able to draw a chair lying down!

Well, when we want to draw an object that we think we cannot, we must be still for a moment, shut our eyes, and try to imagine it. We shall see it quite plainly after a little while. We shall notice objects much more thoroughly when we have tried to draw them from memory, and so we shall learn how carelessly we have hitherto looked at things.

Make a cardboard chair with no separated legs, really a box with a back. Colour it as you did the box, and draw it just as you see it from every possible view. Watch the shapes, as in the drawing of the box.

Let us put in some flowers and grass; she is a dainty princess, and would like to see them. We might try to draw the princess sitting on one of the chairs.

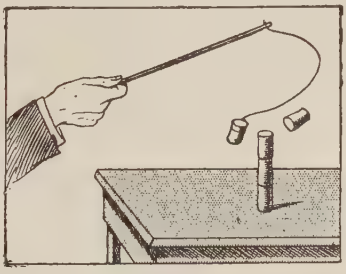
Now see what else you can put into the picture. Never mind how funny your drawing looks, or what queer things you draw. Keep on drawing, and then look at real people sitting down. Try to find out why these friends do not look as if they were sitting. Perhaps you have forgotten to bend their legs at the knees, or at the body!

There is nothing more true than the old saying that we learn to do by doing. But this does not mean that we shall learn if we keep making, carelessly, the same mistakes every time. We must try to improve.

A GAME OF SKILL WITH CORKS

A simple game that, nevertheless, gives plenty of scope for skill and careful exercise with the hand can be played with a number of ordinary bottle corks. These may be from larger bottles, like those in which we buy vinegar, or they may be from the smaller medicine bottles. The only essential is that they should be fairly good and level corks that will easily stand upright.

The only preparation needed beyond the collection of the corks themselves is the making of what we may call a fishing-rod. Any ordinary thin stick or cane will do, and it should be about eighteen inches or two feet long. To the end of this stick we tie a piece of thin, flexible string about two feet long, and to the end of the string a cork, similar to those that we have collected. The picture shows what the fishing-rod looks like.



REMOVING THE TOP CORK

Now on a table we pile up the corks, one on top of another, using as many as will stand in this way, so as to get as high a pile and as many corks as possible.

The game is to stand or sit at the side of the table, and with our fishing-rod gently to flick or touch the top cork of the pile, and knock it off without upsetting any others. Having done this, we try to knock off the next cork, and so on. So soon as we disturb another cork beside the one for the time being at the top which we are removing with our fishing-rod, we lose our turn, and another player piles up the corks once more, and sees how many he can flick off. The player who removes the largest number of corks, one at a time in the manner described, without disturbing a second cork, wins the game. With a little practice we soon become quite skilful.

THE RIGHT WAY TO SHARPEN A LEAD PENCIL

A lead pencil that is improperly sharpened is neither useful nor sightly. If the pencil is for sketching, it should be sharpened equally all round so that a perfect point is produced, and the wood should be cut away at a gentle slope. Short, stumpy points and very long, tapering points are equally bad.

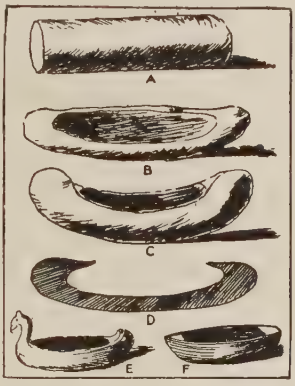
If the pencil is to be used for drawing straight lines, as in perspective work, then it should not be sharpened to a point. Cut the pencil with a long slope on opposite sides, so that the end is chisel-shaped, and then slightly round the angles of this chisel end. A pencil sharpened in this way may be used for line-work for a long time, and may be resharpened on a piece of sandpaper.

WHAT ARE THESE BOYS AND GIRLS DOING?

Here are a number of boys and girls all shown doing something, but in each picture some object is left out, so that we can only judge what they are doing by their attitudes. Look at the pictures carefully, and see if you can discover what it is that each one is doing. The solutions are given on page 6062.

MODELLING A BOAT, BELL AND MATCH-STAND

Up to the present the models we have made have been worked up from the sphere, or ball. The canoe, the first of the present set of models, is of a very different character. Instead of using the sphere as a beginning, we take the roll; or, rather, the cylinder. Our method of work, therefore, will be somewhat different. The model will demand considerable skill, and we must not be discouraged if our first efforts fail. The canoe, if made well, and without too great a bulk of material, will float quite easily. It is to be made by the fingers entirely out of one piece.



VIKING BOAT AND CANOE

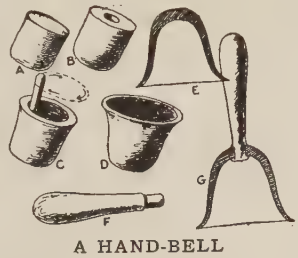
Before beginning, we knead our plasticine thoroughly and see that it is fairly soft. Roll out a piece of suitable size to the form shown at A. Then, while it rests on the slate, with the first finger of the right hand press down its length a hollow, or groove, as shown at B. This pressure repeated will cause the material to bend upwards at each end, as seen in the picture.

Now, holding the model in the left hand, continue the pressing, and make the groove deeper, as shown at C. Force the finger-tip well into the thick substance at each end—see figure D—and work the material well over the space which the finger-tip has made. This will give the sheltered ends. We must not, of course, attempt to make the hollow by cutting out. Cutting or carving is not modelling. The ends are shaped by finger and thumb, and the whole is made smooth by stroking lightly. The exact shape of the ends can be varied to suit our own taste.

This exercise can be used as the basis of many others—the Viking boat, for example, as shown at E; or the ordinary type of boat, as illustrated at F. There are differences in the shape of these, but with practice we should be able to make them with ease.

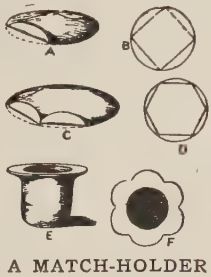
The hand-bell illustrated has much in the making of it that is similar to the last model. It is quite possible to make it from one piece of material, but it is better to make it in two parts. The bottom part should be made first. The little sketches, A, B, C, D, show plainly the various stages by which we reach the correct form. Roll out a short cylinder, and, holding it in the left hand with the fingers round it, bore a hole about two-thirds of the way through in the direction shown. This may be done with the finger if we are strong enough; if not, a lead pencil is a good substitute. This will give the appearance as shown at B. Still grasping the cylinder in the same manner, rotate the pencil or finger in the way marked by the arrows in C. This will widen the hole, and cause the spreading out of the end to be evenly done. It thus roughly assumes the bell shape shown at D. With fingers and thumbs mould it carefully until it assumes the correct form, preserving the hollow as shown by the section marked E.

THE MODELS AS THEY ARE WHEN COMPLETED



A HAND-BELL

We shall see that the material is left thicker at the top, and decreases in thickness down the sides. This is to ensure stability, or firmness, and to allow of sufficient substance in which to fix the handle. Make both the interior and exterior as smooth as possible by gentle pressure while stroking with the fore-finger.



A MATCH-HOLDER

There may be many varieties of handles, but in the illustration marked F perhaps the simplest of all is shown. It is rolled out of a thin cylinder, and modelled by altering the pressure of the hand while it moves backwards and forwards in the process. We shall find it best

to use the ball of the thumb for varying the pressure, for if the fingers are used there is a difficulty in preventing the appearance of ugly grooves across the roll. The length of the handle should be in good proportion to the bell. At the thinner end we should leave a small piece of material equal in diameter to that of a lead pencil, or less if the size of the handle will not admit of this. Bore a hole through the top of the bell, and pass the small end through. The projecting piece is then pressed down on the inside as at G. A few deft strokes with the thumb will unite the two parts.

We shall probably find the match-holders illustrated the most interesting and effective models yet given. Of course, they are only models, and are not intended for practical use, but in them there is much that can be learnt of the art of modelling.

To get the best results, there must be shown taste and feeling in the proportion of the parts, and the whole must be brought to a nice degree of finish. Each model consists of a tray, to which is attached the cup for matches, and each is made in two parts. Let us take number I first. The base is square, and it has edges at right angles to it. These edges are themselves curved. It is formed from the flat disc of the earlier exercises. Make the disc in the manner already described, taking care that the edges are pressed out quite thin. It is best to do the thinning out while the disc is revolved between the fingers and thumbs. Now bend up one edge, taking one of the four divisions, which we call segments, see sketch B, and this will give the appearance as shown in the little sketch at A. The corners may be shaped by gentle pressure of the little finger between each two edges as they are turned up into their positions. The cup for the matches is made in exactly the same way as the bell part of the second model, with this difference—that the top edge is prevented from spreading outwards while the hole is being made. In joining the cup to the tray, the cup is pressed on the raised portion of the centre of the tray, united by stroking the two round with the forefinger at their place of contact.

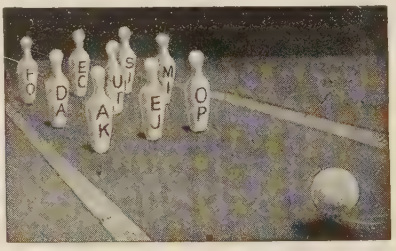
The second match-holder is more difficult, for from the circular disc six equal turned-up edges have to be made to form the tray. This will give what is called a hexagonal shape, as shown at D. If we are doubtful of being able to bend the six edges truly without guiding lines, as at C, we may mark on our disc the hexagon, as shown at D. After the edges are turned up, each one is bent slightly inwards. The tray is now ready for the cup. This is made in a similar manner to that of the first model.

At E we can see the shape to which it should be brought, and the top may be either left plain or scalloped, as in the photograph. The scalloping is done by pinching out the six divisions to the shape, as shown in the sketch plan marked F.

A WORD GAME WITH SKITTLES

An interesting word game can be played with skittles or ninepins. We print on each skittle, with either ink or chalk, letters of the alphabet, no letter appearing twice on the same skittle. It is wise in writing the letters on the skittles to give rarely-occuring letters, like q, x, z, only once, and to make up the necessary number of letters with those that are more often used.

When the skittles are ready, we stand them up in three rows, as shown in the picture, the skittles being about six inches apart, and the rows also six inches apart. Then we take the two balls, and, from a distance of about twelve feet, we see how many ninepins we can knock over. Now we have to see what letters are on the ninepins that we have knocked down, and from these letters make up words, not using any letter more than once. Sometimes we shall find that we can scarcely make one word, while at another time we shall be able to make many. In making the letters on the skittles, we should see that there is at least one vowel on each skittle. Every letter of the alphabet should be given at least once, but the additional number required to make up four on each skittle may be any letters, so if we like we can give three or four a's, or e's, and so on. The player who makes most words in a given time wins the game.



SKITTLES ARRANGED FOR PLAY

SOLUTIONS OF PUZZLES ON PAGES 6006 AND 6060

Reading to the right from the top left-hand picture, the boys and girls shown on page 6006 are digging, playing the piano, building a sand castle, swinging, flying a kite, leaping a gate, using a bat, jumping, kicking a football, writing, throwing a ball, pulling a garden roller, spinning a peg-top, fishing, bowling a hoop, and playing leap-frog.

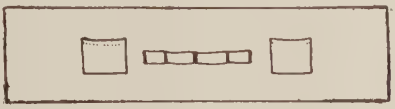
The boys and girls on page 6060 are riding a bicycle, resting on parallel bars, climbing a ladder, sweeping, playing a banjo, using dumb-bells, rowing, looking through a telescope, shooting with bow and arrow, throwing a snowball, playing a violin, knocking at a door, digging, signalling with flags, washing, and painting at an easel.

A WORK-BASKET THAT A GIRL CAN MAKE

We all know the little round wicker baskets shown in the picture below, and called egg or stocking baskets. They cost little, varying according to size, and, properly fitted up, make the cosiest little work-baskets imaginable.

We are going to line our basket with cretonne, and put "workmanlike" little fittings all round to contain our sewing materials.

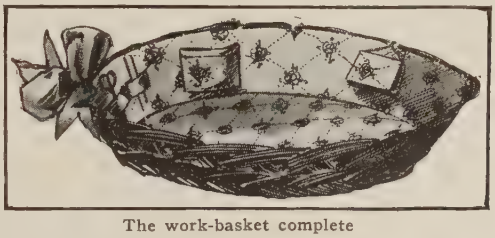
We shall need half a yard of thin cretonne, with a small pattern on it in pink and blue.



How to arrange pockets and slots on half the length of the slip of lining

First, we cut a strip of cretonne 2 inches longer than the basket is round, and 2 inches wider than the basket is high. On this strip we sew a couple of little cretonne "patch-pockets," about 3 inches square, and a slot-holder for the scissors, and other things, with four divisions. This is made of a folded piece of the cretonne, 1 inch wide, and about 3½ inches long, as we see in the first picture.

Our strip is now ready to be sewn into the basket. We turn in the top edge all along—an inch turning will do—and neatly sew it all round to the inside of the basket with a big needle and thread. We must take care to let the stitches show as little as possible, and we must not attempt to pierce the willow with the needle, but pass it between the pieces, to make the necessary stitches. Where the ends meet we join the cretonne by folding the last edge in, and catching it down to the other.



The work-basket complete

At the bottom edge our strip will be a little too full, so we arrange it to fit by making a small pleat here and there as we tack down the *raw* edge to the *bottom* of the basket. Note that we do not turn in the bottom edge, because it is long enough to lay on the bottom of the basket and be hidden by the bottom cover—which is made separately on a circle of stout brown paper cut to fit, and covered with cretonne. We sew the cretonne to the brown paper with white cotton—using big stitches on the wrong side and little ones on the right—all round the edge. A few firm stitches taken through the canes will hold it quite firmly in its place.

We can now, if we like, make a little ruche, or frilling, of inch-wide cretonne, and sew it all round the top edge of our basket.

Now about filling our basket. We shall need a pair of scissors, two bodkins—one large and one small—some needles and pins, pearl and boot buttons, a tape measure, and thimble. With a 3-inch square of cretonne we make a little pincushion and stuff it with cotton, and hang it on the side of the basket with a 3-inch piece of cord, as we see in the second picture. We shall want, too, a little needle-book, made in the usual way—a stiff cover and flannel leaves. This we also attach with cord, leaving enough to allow us to get to it easily.

The tape measure we can fold up and slip in one of the slots, with the scissors and bodkins; while the thimble, and any other odds and ends we find useful for sewing purposes, can go in one of the pockets, and the buttons in the other.

The two or three spools of cotton, which we must not forget, must lie in the bottom loose, where they can be easily got at. Every girl should own her own dainty work-basket where she can keep her thread and needles and other sewing accessories. The man who said he would not marry the girl who spoke of losing "our" needle was quite right, for it implied many lacks beside that of needles.

A fitted work-basket is a very expensive thing to buy, but one like this can be made for a small outlay, and will be as satisfactory as one costing many times as much.

HOW TO WALK IN A STRAIGHT LINE

It may seem quite easy to walk in a straight line, but, as a matter of fact, it is almost impossible to do so.

What we must do is to fix our eyes upon two objects in front of us, the one nearer to us being smaller than the one farther away. The two objects must be in line, and as we walk we take care to keep them all the time exactly in a line before us—that is, one object exactly in front of the other in our vision.

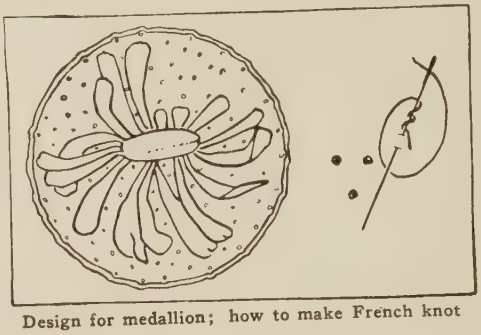
As we approach these two objects we must select a third, also in a line with the others, and after we pass the first object we can use the second and third as our guides. Then, as we approach the second object, we select a fourth, and so on, taking care, as we walk, always to have at least two objects coinciding with one another in our vision. Any objects can be chosen for this purpose, though if they are on a level with the eye it is a great advantage. Trees and shrubs, posts and telegraph poles, stones and hillocks, are only a few of the many objects that will occur to the mind of any boy.

A ROLL-UP CASE FOR SILKS

THOSE of us who are interested in embroidery should make a little case to hold our skeins of silk. It is rather a good idea to think of such a case as a paint-box, and to use it in much the same way.

For this case, which holds twelve skeins, each in a separate slot, we should need half a yard of crash or coloured linen, a scrap of flannel for the needle leaves, and a yard of brown cord. It measures 24 inches by 13 inches, and the piece for the slots, 6 inches by 18 inches. Of course, we can choose the colours we like best; and the outside need not be made of linen, but can be made of silk, cloth, velvet or satin.

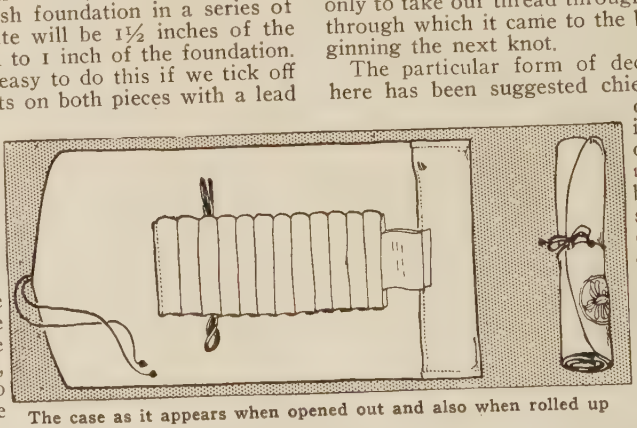
The case piece is cut oblong, and afterwards the end one is shaped as shown in the picture below, which shows the case opened out.



Design for medallion; how to make French knot

First, we hem the stuff all round very neatly, and then make the little pocket which comes at the other end by doubling the stuff over 4 inches and sewing it down. This pocket is useful for all sorts of odds and ends, scissors, pencil, thimble, the threader—which we will explain presently—and will even take a small piece of any embroidery we may be working on.

To make the slots, we just hem the 6-by-18-inch strip all round, and then sew it down to the crash foundation in a series of flutes. Each flute will be 1½ inches of the strip sewn down to 1 inch of the foundation. It will be quite easy to do this if we tick off the measurements on both pieces with a lead pencil, then all we have to do is to join the points together. The position of the flutes can be seen in the second picture. We sew the strip in the middle of the foundation, starting two inches from the bag, or pocket.



The case as it appears when opened out and also when rolled up

At this point we fit in our two needle leaves, neatly notching the three edges with scissors, and sewing the fourth edge just under the first flute. We must "back-stitch" each flute down, and very firmly sew it at each end with several stitches, one over the other, or they will come undone.

The inside of our case is now ready for use, and the only thing we have to get for it is a long pin, or "threader," made of 15 inches of copper wire, just bent exactly like a hairpin. This we use as a bodkin is used to thread each skein through a slot.

The cord is sewn on at the point in front and used as a fastening, and the ends are finished with knots.

The front of the case we shall decorate with a medallion of embroidery—a circle 2½ inches across, filled with a pattern, worked in crewel stitch, and having its background filled with French knots. We do this on a separate little piece of crash, cut half an inch larger all around; the edges will be turned in, and we shall hem it to the foundation when finished. In the medallion is a shaggy marguerite.

The pattern for the medallion given in the first picture must be traced off, and transferred to the holland by means of a sheet of blue carbon paper. If we have not done any French knots before, we must work a few on an odd scrap of stuff first. They are not difficult. The cotton is brought up to the right side of the stuff, and a tiny stitch is made near the point where the thread comes through; but *first* we have wound the thread twice round the needle, and after the stitch we have looped it once over the point of the needle before pulling it tight. This leaves a neat knot on the front, and we have only to take our thread through the same hole through which it came to the back before beginning the next knot.

The particular form of decoration shown here has been suggested chiefly on account of its simplicity. The medallion makes up charmingly, but if we prefer something more elaborate, we can, of course, substitute any pattern that commends itself to our taste.

With clever fingers and a little ingenuity we can make ourselves many such dainty accessories for our needlework. It should be the delight of every young girl to have the contents of her work-box pretty and attractive to the eye as well as tidy and useful.

The girl who keeps her silks this way will save much time which would otherwise have to be spent in untangling them, and all know that such a task is very provoking.

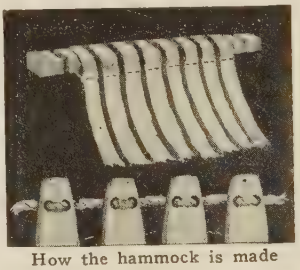
HOW A CAR RUNS UP A CLIFF

This picture shows how some of the cliff railways at our resorts are worked. Two cars, each with a large water-tank, are connected by a double rope that goes round a horizontal wheel at the top of the cliff. A car arrives at the top with its tank empty. This is filled with water, the brake is released, and the car descends by its own weight, pulling up the other car. When the car gets to the bottom, a lever is touched by a rod projecting from the pump-house, and the water is released. Meanwhile the upper car has its tank filled, and then descends, pulling up the lower one. From time to time the released water is pumped to the top of the cliff for further use.

TWO WAYS TO MAKE A GARDEN HAMMOCK

When the summer months approach and the fine sunny weather draws nearer, we all like to spend as much time as possible in the garden, and there is nothing more delightful than to lie in a hammock under the shady trees with an interesting book.

It is quite easy for any boy or girl to make a hammock that will be quite attractive and comfortable, without the trouble of learning to do network. We can make a hammock of striped canvas, or of any similar material such as is used for awnings. The size of the hammock depends, of course, upon the size of the person who is going to use it, but if we are going to make a hammock that will take a fully-grown man or woman, we want a piece of material about three and a half yards long by a yard and a half wide. A material with a narrow red stripe always looks pretty.



How the hammock is made

If the material is the full width required, there will be a selvage at each edge, so that it will not be necessary to hem it. At each end of the material we fold over about two inches, and sew it down in such a way as to make a deep hem with room for a stout piece of wood to be slipped through as shown at the top of the first picture. At each end of each stick we cut a small groove or notch, as shown. Then, taking a rope, strong but not too thick, we tie the ends to the grooves in the stick at what will be the head, or upper end, of the hammock.

A similar rope is tied to the stick at the other end of the hammock, which is now ready to be slung from a tree. The length of the rope tied to the sticks at the ends of the hammock depends upon where we are going to hang it. With a cushion for the head we have a very comfortable hammock, and the cost in money and trouble for the whole of it is very little indeed.

The canvas hammock complete

Instead of the pieces of wood, top and bottom of the hammock to keep it spread out flat, we can, if we like, thread the rope through the hem, and when we sling the hammock and get into it, the ends will be drawn together and the canvas become boat-shaped. Some prefer this style of hammock, and it is as easy to make as the other. Still another kind of hammock, not so comfortable, perhaps, but yet very useful, can be made for a few cents from old barrel staves. We can easily get some barrels which we can take apart. Then measure off on each stave about two or two and a half inches from the ends, and draw pencil-lines. Using these lines as guides, we bore two holes at each end of each stave, and then thread the staves together, as shown at the bottom of the first picture, using a strong, flexible, but slender rope, and leaving from one to two inches between the staves. Tie knots at the four ends of the ropes to prevent the staves from becoming unthreaded, and then attach loops so that the hammock may be slung wherever necessary. Of course, this simple wooden hammock will not be so soft and flexible as one of canvas or net, but covered with cushions or a rug it makes an excellent resting-place.

It is important in selecting our barrels from which to obtain staves that we choose only those that have dry, sound wood. Do not have a barrel in which the staves are at all split or dented. In hanging a hammock we should always see that there is a considerable stretch of rope at each end.

As regards the first kind of hammock described on this page, if we do not want to go to the expense of buying canvas, we can use an old piece of carpet, or even a couple of old sacks, so long as they are strong and sound. With these, and a long piece of strong rope, we can make a hammock in a few minutes, and if a good rug be thrown over it as a covering, the material of which it is made will be unseen.

The hammock is a very ancient luxury, dating back to Greek times. Columbus, too, found that the natives of America used swinging beds, and it is from them that we get our word hammock. The word comes from the hamac-tree, the bark of which was netted and used by the Indians for their hammocks.

Some little skill is needed before we can get in and out of a hammock easily, but with practice we shall soon be able to do it.

Amusing accidents sometimes occur when one tries to get out too quickly, or else does not take care to keep watch of his balance.

The hammock has such a provoking way of turning upside down, and when this happens, of course what was on the top goes to the under side and one goes straight to the ground, and perhaps gets a bumped head. It is well to have two rings attached to the ropes, for when the air is damp the ropes grow shorter, and, therefore, the hammock is raised entirely too high.

A STORY-DICTIONARY IN ENGLISH AND FRENCH

DICTIONARY

Accents means tones.
Accosted means went up to and spoke to.
Affligé means afflicted, grieved.
Astounded means amazed, astonished.
Banish means to drive away.
Compelled means forced, made.
Concerned means disturbed, troubled.
Délire means delirium.
Diffidently means timidly, bashfully.
En guise de means by way of.
Enthusiastic means excited about something that pleases us very much.
Exquisite means choice, fine.
Extinguished means put out.
Habitait is the past of **habiter,** to dwell, to live in.
Incessantly means constantly, without ceasing.
Induce means persuade.
L'avoir tenu à l'écart means, literally, to have held him out of the way.
Légère means light.
Melody means tune.
Penetrated means made its way into.
Rapprocher means to bring together.
Raves means speaks wildly and excitedly.
Reproaches means blames, finds fault with.
Respond means to reply. To respond to applause is to play a piece over again.
S'échappent is the present of **s'échapper,** to slip out.
Se dirigeaient is the past of **se diriger,** to direct or guide.
Soothe means to soften, to ease.
Tout à coup means, literally, all at a blow.
Vient rompre means comes to break.
Virtuose means virtuoso, or artiste.

THE LOVE OF A BROTHER

The great violinist bowed his thanks to the *enthusiastic* audience and run down the platform steps. The door swung to behind him, but through it came the sound of applause so persistent that it almost *compelled* him to *respond.*

But he shook his head. "I'm too tired," he declared, "to play another note."

As he stepped into his motor, a boy *accosted* him.

"I beg your pardon, sir," he said *diffidently.* "But could you spare a few minutes to play something to my little brother?"

The man looked *astounded.*

"He's very ill," explained the boy. "He doesn't even know us now, but he's so *concerned* at missing your concert that he seems unable to *banish* it from his mind. He *raves* about it *incessantly,* and *reproaches* us for keeping him away. The doctor says he must have sleep or he will die, and I thought that if I could *induce* you to play to him just a little, it might *soothe* him. He's mad about the fiddle. . . . Mother said you'd never come."

"But you had more faith in me?" said the fiddler. "Where do you live?"

The boy told him, and in a few minutes they were on their way to the house where the sick boy lay.

At one of the windows a light shone brightly.

"That's the room," said the boy, as they paused for a moment in the little garden.

The man did not answer, and the boy slipped away. For a while there was silence, and then suddenly the stillness was broken by an *exquisite melody.* Note by note it fell, till the air was flooded with its sweetness. It *penetrated* the sick-room, and brought joy and peace to the little sufferer; the restlessness ceased, and the tired eyelids drooped till at last they closed in a deep sleep.

The man in the garden below watched till the curtains were softly drawn and the lights *extinguished,* then he slid his violin back into its case, and vanished in the darkness.

L'AMOUR D'UN FRÈRE

Le grand violiniste salua *en guise de* remerciements, l'auditoire enthousiasmé, puis descendit l'escalier de la scène en courant. La porte se referma sur lui, laissant entendre des applaudissements si persistants qu'ils l'obligèrent presque à répondre.

Mais il secoua la tête. "Je suis trop fatigué," déclara-t-il, "pour jouer une note de plus."

Comme il montait dans son automobile un petit garçon l'accosta. "Excusez-moi, monsieur," dit-il timidement, "mais pouvez-vous disposer de quelques minutes pour jouer quelque chose à mon petit frère?"

Le violiniste parut abasourdi.

"Il est très malade," expliqua le petit garçon. "Il ne nous reconnaît même pas maintenant, mais il est si *affligé* d'avoir manqué votre concert qu'il ne peut en bannir l'idée de sa tête. Il en parle incessamment dans son *délire* et nous reproche de *l'avoir tenu à l'écart.* Le docteur dit qu'il lui faut du sommeil ou, sinon, il mourra, et j'ai pensé que si je pouvais vous décider à lui jouer quelque chose, les *accents* de votre violon le calmeraient. Ah! il est fou de ce violon! . . . Ma mère disait que vous ne viendriez jamais."

"Mais toi, tu as eu plus de foi en moi?" répondit le violoniste. "Où demeures-tu?"

Le petit garçon lui dit où il *habitait,* et quelques minutes après ils *se dirigeaient* vers la maison du jeune malade. Une lumière brillait à l'une des fenêtres. "Voilà la chambre!" dit le petit garçon, en s'arrêtant dans le jardin.

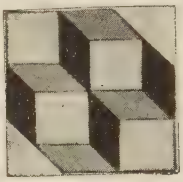
Le *virtuose* ne répondit rien, et le petit garçon s'esquiva. *Tout à coup* une douce mélodie *vient rompre* le silence de la nuit. Les notes *s'échappent* les unes après les autres, remplissant l'air de leur charme. Elles pénétrent dans la chambrette, apportant la joie et la paix au jeune patient; l'agitation cesse, et les paupières languissantes de l'enfant se ferment enfin sous l'action d'un profond sommeil.

L'artiste dont l'œil était resté fixé sur la fenêtre voit une main *légère* en *rapprocher* les rideaux et la lumière s'éteindre, alors il replace son violon dans la boîte, et disparaît.

HINTS AND TRICKS FOR ODD MOMENTS

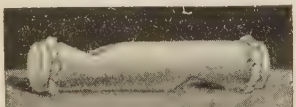
THE MYSTERIOUS CUBES

HERE is a curious design. Let us look carefully at it, and say whether we can see three cubes with their right-hand sides hidden and their left-hand sides showing black, or three cubes with their left-hand sides hidden and their right-hand sides showing black. In other words, are two cubes resting on one cube, or is one cube resting on two? While we are looking at the picture and trying to answer the questions, we shall probably get very mixed in our minds, for at first the cubes will seem to be in one position and then they will suddenly seem to change their position.



A TOY TO DISGUISE THE VOICE

A SIMPLE little instrument can be made out of a piece of bamboo, which will enable us to disguise our voice, so that our friends will not recognise it. We take a piece of bamboo about the thickness of a walking-stick, and three or four inches long, and remove any pith there may be inside. Then we cut a notch at each end, on opposite sides of the bamboo, as shown in the picture. Over each end of the bamboo we stretch tightly a piece of thin tracing paper. Then, with a large pin, we prick a hole in each piece of tracing paper. The instrument is now ready.



A LITTLE FOUNTAIN IN A JAR

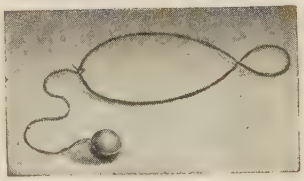
THIS picture shows how we can make a little fountain in an inverted glass jar. Any kind of glass jar will do—one in which we buy pickles or jam, for instance. We take a small bottle about half the height of the jar, and fill it about three-quarters full of water. Then we cork it well with a cork in which we have bored a hole. Through the hole we pass a glass tube long enough to reach nearly to the bottom of the bottle. About an inch of the tube should project above the cork, and we should seal the cork to the bottle all around with soap or wax, so that no air can get in. In a plate or tray we place several layers of wet blotting-paper, and stand the bottle in the middle. Then we take the glass jar and warming it well, place it mouth downwards over the bottle. In a few minutes the air in the jar, which was warm will get cool and contract, and a small jet of water will at once spurt from the tube of the little bottle.

A DIFFICULT DRAWING TRICK

THERE is a drawing trick which seems simple, but is very difficult. Let us take a book or board, and place on it a sheet of paper. Then, holding the board with the paper horizontally, let us stand immediately in front of a looking-glass, and, looking in the glass, try to draw on the paper a square and its diagonals. Of course, we must not look at the paper itself or the pencil while drawing, but only at the reflections in the looking-glass.

A HOME-MADE CUP AND BALL

IT is quite easy to make a toy that will answer the purpose of the well-known cup and ball. We take a piece of wire about two feet long, and bend it as shown in the picture. Then we take any ordinary ball, or, if a ball is not available, make one out of anything that is handy, and tie this to the wire with a piece of flexible string about a foot and a half long. The toy is then ready for use, and the game is to hold the wire by the handle, and see how many times we can swing the ball through the loop without letting it touch the wire. Any number of players can join in.



A LEG TRICK

THERE are many simple tricks for boys which seem quite easy to do, but which, when attempted, prove to be anything but easy. Let us put our leg on the table in the manner shown in the picture, taking care that our heel and the back of our knee are both touching the table. But now let us try to untie our shoelace.

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THE UNKNOWN HERO

On the banks of the Rhine, just above the little town of Caub, is the castle of Jutta's Rock. Jutta was the beautiful sister of Philip, the lord of Caub, and she was queen of the tournament at Cologne when the German heroes rode the lists and showed their courage before the eyes of their ladies. No knight, however, carried her colours, though many wished to win that honour. None had been able to touch her heart, but her brother hoped that one of her suitors would win her by some striking act of bravery in the tournament.

But, famous as the warriors of Germany were for horsemanship and strength of arm, none was able to distinguish himself that day. A tall knight, with an English device inscribed on his shield, bore down every warrior who entered the lists against him.

All the ladies were deeply interested in the strange knight, and when Jutta saw his eyes fixed on her, her heart began to beat. The stranger won the prize, and, to the great joy of Jutta, he reined in his warhorse by the place where she sat.

"I love you!" he said. "Trust me! Give me the glove you wear, and I will return with it in three months."

"Cannot you stay?" said Jutta anxiously, giving him the glove.

"No, my dear lady," said the unknown knight. "I have come to Germany on a great enterprise, and if I delay I shall fail."

He spurred on his horse and rode into the night. For six months Jutta waited for news of her unknown lover. She heard that some English knights had been slain in a fight over the election of Richard of Cornwall as Emperor of Germany.

"He must have fallen in the fray," she kept saying, as the days went by. And at last she shut herself in her room, and refused to see anybody.

One afternoon the Emperor of Germany called to claim her hand in marriage. Jutta returned word through her brother that she had resolved to retire to a convent. But the emperor insisted that she should see him, and Jutta came slowly into the hall.

"Jutta," said the emperor, handing her a little white glove, "have you forgotten the poor English knight?"

The emperor raised his visor, and, with a cry of gladness, Jutta ran into his arms. Her hero was Richard of Cornwall, brother to King Henry III. of England! After a long struggle he had been crowned Emperor of Germany. He now came to share his high honours with the maiden whose heart he had won as an unknown knight, and Jutta was made Empress of Germany.

THE FIGHT WITH THE DRAGON

As the young knight rode through the streets of Rhodes, thousands of voices sang his praise. For behind him he dragged the lifeless body of the dreadful monster that had filled the land with terror and dismay.

"Open the gates," cried the crowd, leading the young knight to the monastery of the military monks called the Hospitallers of St. John. "He has killed the dragon!"

The gates were flung open, and the people followed the hero into the council chamber, where the Grand Master of the Hospitallers was sitting with the other officers of the Order.

"What is the meaning of this?" said the Grand Master, in a stern voice.

"I have killed the monster that made its den in the Chapel of the Three Kings of Cologne, and prevented pilgrims from visiting it," said the knight.

"My son," replied the Grand Master, still more sternly, "you have done great wrong. After five of our bravest knights lost their lives in trying to kill this dragon, I forbade any man of our Order to attempt the feat that you have rashly undertaken. You have disregarded my orders. Speak! What is the first duty of a knight of St. John?"

"Obedience," said the young Hospitaller, bowing his head with shame at the unexpected rebuke.

"You are a professed champion of our Lord, wearing the emblem of the Cross," exclaimed the Grand Master. "You have broken the law of your Order wilfully and rashly, and——"

"Not rashly, my father," interrupted the young knight. "Hear my story. I went to a craftsman of my native town, and got him to make a life-sized image of the dragon. This I placed in a field, and trained my horse to approach it, and taught my dogs to attack it only where its skin was thin and tender. I sailed back to the chapel, and, finding that the monster was sallying out of its den and slaying the country people, I resolved to fight it at once."

"You should have first asked leave," said the Grand Master.

"There was no time," replied the young knight. "Men were being killed every day. I found the dragon sunning itself on the ground beside the chapel, and set my dogs on it. Then I charged at the monster, and tried to pierce its body with my spear. But the weapon broke against its scaly hide. Then I attacked the angry dragon with my sword. This, too, broke in my hand, and I was thrown to the ground, and the horrible beast opened its jaws to devour me. But my dogs attacked the monster where the skin was unprotected by scales. Roaring with pain, the dragon turned from me and tried to drive away the dogs. Then I drove my broken sword up to the hilt in its body, and it fell to the ground, slain."

Moved by the young knight's story, the crowd made the council chamber ring with their applause. Even the Hospitallers were won by the modest air with which he related his wonderful achievement, and they begged that he should be given the crown of valour. But as the people were carrying the young knight in triumph through the hall, the Grand Master called for silence, and said:

"You have become the enemy of your Order. Take that holy cross from your breast, for you are no longer worthy of wearing it. It is the emblem of the spirit of Christian humility and obedience. You have slain the dragon in order to win idle glory, and a more terrible monster now lodges in your proud breast — the serpent of self-will, disobedience, and worldly pride."

The crowd raised a cry of protest, but the dragon-killer meekly obeyed his angry superior. Silently, and with downcast eyes, he took off the dress of his glorious Order, stooped and kissed the hand of the Grand Master, and slowly walked away with bowed head.

But as he reached the door the Grand Master called him back.

"Come, my son," he cried; "you have now won a harder battle than your fight with the dragon, for you have conquered yourself. Take back the Cross of the Hospitaller Knights. You have gained it by heroic meekness of soul!"

A TALE OF MANY LANDS

HOW BAULDOUR THE BEAUTIFUL WAITED A HUNDRED YEARS

PECOPIN was handsome and Bauldour was beautiful, and they loved each other. Pecopin was the son of the Burgrave of Sonneck, and Bauldour was the daughter of the Lord of Falkenburg.

One owned the forest; the other owned the mountain. What could be better than to marry the mountain to the forest? The two fathers came to an understanding, and Bauldour was betrothed to Pecopin.

I

THE TALISMAN

This happened in April, when the whitethorn flowered to the sunshine in the forest, and a thousand charming little waterfalls, made of snow and rains transformed into brooks, danced in music down the mountains. Pecopin had all the qualities of a brave and gentle knight; Bauldour was a queen in her castle, a humble and holy maiden at church, a fairy-like creature in the woods, and a good housekeeper.

It was said of her that her eyes were the sweetest ever seen. She spent most of her time at her spinning-wheel, and Pecopin went out all day hunting.

The day appointed for their marriage drew near. Pecopin became more joyful; Bauldour became more happy. Bauldour went on spinning in her room; Pecopin continued to hunt in the forest. As he was crossing a clearing a horn sounded, and a glittering troop of noblemen came out of the thicket. The great Count Palatine was there.

"Come with us, you handsome young huntsman!" he cried.

"Where are you going?" said Pecopin.

"Young knight," replied the Count, "we are going to hunt a kite at Heinburg that destroys our pheasants; we are going to hunt a vulture at Vaugstberg that kills our young hawks; we are going to hunt an eagle at Rheinstein that slays our falcons. Come with us."

"With pleasure!" said Pecopin.

The hunt lasted three days. The first day Pecopin killed the kite; the second day he killed the vulture; the third day he killed the eagle. The Count was amazed at the feats of the young huntsman.

"Sir Pecopin," he said, "you shall have my estate of Rhinech. Come with me to receive it."

There was nothing to do but to obey. Pecopin sent to Bauldour a letter in which he sadly announced that the Count had compelled him to go. "But do not let this trouble you, my sweet lady," he added at the end of the letter, "I will be back next month."

The Count was so delighted with Pecopin that after some time he said:

"Pecopin, I am sending an embassy to the King of France, and I have chosen you as my ambassador because of your knightly renown."

Pecopin went to Paris, and the French king was also pleased with him, and, taking him one morning by the hand, he said:

"I want some noble and well-spoken lord to take a message for me to Spain, and I have chosen you as my ambassador because of your great intelligence."

So Pecopin set out for Spain. At Granada the Moorish ruler received him very kindly, and when Pecopin went to say good-bye, his host said:

"We must indeed say good-bye, my handsome young Christian knight, for you must start at once for Bagdad."

"For Bagdad!" cried Pecopin.

"Yes," said the Moor; "for I cannot sign the treaty with the King of France without the consent of the Caliph, the Commander of the Faithful. I must send some person of consideration, and I have chosen you as my ambassador because of your handsome face."

When you are among the Moors you must go where the Moors want you to go. So Pecopin went to Bagdad.

There he had an adventure. An old negress gave him a talisman in the shape of a great turquoise, saying:

"This is sent by a princess who loves you, and whom you will never see. So long as you wear it you will remain young. When you are in danger of death, touch it, and it will save you."

EYES SWEETEST EVER SEEN

This painting is by Herbert Schmalz, and reproduced here by permission of Frederick T. Dennis, publisher of the colour engraving

Now, this princess was the favourite daughter of the Caliph of Bagdad, and the Caliph was very angry that she should have fallen in love with a Christian knight.

Taking Pecopin by the hand, he led him to the top of a high tower, and said: "Young knight, the Count sent you to the King of France because of your knightly renown; the King of France sent you to the ruler of Granada because of your great intelligence; the ruler of Granada sent you to the Caliph of Bagdad because of your handsome face; and I, because of your knightly renown and your great intelligence and handsome face, send you to death!"

As he pronounced the last word the Caliph pushed Pecopin from the top of the high tower.

As Pecopin fell through space his last thought was of Bauldour. He put his hand on his heart, and, without knowing it, he touched the talisman.

II

A NIGHT'S HUNTING

On touching the magic turquoise Pecopin felt as if he were being carried along by wings.

He no longer fell; he soared. He continued to fly all through the night, and at break of day the invisible hand which upheld him put him down on a lonely shore on the edge of the Arabian Sea.

For a long time Pecopin wandered about, vainly endeavouring to return to Falkenburg. Sometimes he went barefooted, sometimes he walked in sandals. He rode on the ass, the horse, the mule, the camel, the zebra, and the elephant. He voyaged on all kinds of boats, and encountered all sorts of winds. He was sold as a slave in one country, and made a king in another. Several times he was shipwrecked, but he always escaped, and never did he cease to yearn for home. Through all his adventures, achievements, and sufferings, the brave and faithful Pecopin had only one aim—to return to Falkenburg; and only one hope—to marry Bauldour. Thanks to the talisman, which he always carried on him, he could neither grow old nor die.

As he spoke, the Caliph pushed Pecopin from the top of the high tower

At the end of five years, however, Pecopin was still seeking for Bauldour, and one day he found himself in the Forest of the Lost Tracks. No one who enters the Forest of the Lost Tracks ever finds a way out of it, and Pecopin, feeling that all was over, threw himself face downward on the ground, crying:

"I shall never see Bauldour again!"

"Yes you will!" said someone by his side.

Pecopin sprang up. He found himself face to face with an extraordinary old nobleman, clad in a magnificent hunting dress. He was thin and bent with

extreme old age, but his manner was gracious and pleasant.

"What do you want with me?" cried Pecopin.

"To take you to Bauldour," said the old huntsman, with a strange smile. "Spend this one night hunting with me, and at break of day I will put you down by the gate of Falkenburg."

"But I am worn out with walking," said Pecopin. "I am dead with thirst and hunger. I could not even mount a horse."

"Drink this," said the old huntsman.

Scarcely had Pecopin drunk a mouthful when all his powers returned. He was again young, strong, and alert, and eager for adventure.

"Come on!" he exclaimed. "I will hunt all night with you if I can see Bauldour in the morning!"

"Hunt's up!" cried the old huntsman, turning towards the thicket. "Hunt's up!"

A troop of knights, dressed like princes and mounted like kings, came out of the underwood, and ranged themselves in a profound silence about the old huntsman. It was now dark night, but the place was lighted up by two hundred grooms carrying two hundred torches. A vast pack of hounds of all kinds was led, yelping and straining at the leash, to the old huntsman, together with two splendid horses.

"Take which one you will," he said to Pecopin.

Pecopin mounted a superb steed; the old huntsman did the same. And away they all went like the wind.

Putting his hunting horn to his lips, the old huntsman blew a terrific blast that rolled out upon the midnight air like thunder, and at the tremendous sound the forest lit up with thousands of extraordinary lights.

Then a great black mist fell upon everything, and Pecopin rocked and swayed along in the darkness in a strange, violent, and supernatural gallop that amazed and frightened him. It seemed to him as if he were being whirled across the earth in a hurricane.

Now and then, when the mist lifted, he caught a glimpse of an enormous stag with great antlers fleeing in front of the wild huntsmen. Then he saw in the distance the broad, moonlit sea. He tried to stop his horse, but it would not stop; he tried to throw himself out of the saddle, but, on making a movement to dismount, his feet were gripped as with iron bands. He looked down, and saw that his stirrups had become living things, grasping him tightly and holding him fiercely upon his saddle.

The wind became hot and stifling. Pecopin gazed round, and saw that he was galloping through India. A quarter of an hour afterwards he was chilled to the bone. The air was dim with snow, and the hard, frozen ground rang with the sound of the innumerable hoofs of the horses. And all the time, louder and deeper and higher than every other noise, rang the wild, mad thunder of the horn of the old huntsman.

Suddenly Pecopin's horse stopped short, and all the sounds around him ceased. He found himself alone at the open gate to a colossal building, pierced with rows of lighted windows.

While he was wondering what to do, his horse leaped through the gate and carried him into an immense hall. Here the old huntsman and his companions were sitting round a great table, on which, in an enormous dish, was the stag with spreading antlers, roasted, blackened, and smoking.

"Now you must sup with us, Pecopin, after our great hunt," said the strange old huntsman.

But as he spoke a cold white gleam of daylight came through the eastern windows, and a cock crowed, and Pecopin fell from his horse to the ground. When he rose up he found himself alone by the gate of an old castle. He looked at it, and shouted with joy. It was the Castle of Falkenburg!

If only a flash of lightning were in the habit of climbing stairs, I would compare Pecopin to it. In the twinkling of an eye he reached the fifth story of the castle, where Bauldour used to sit, and he heard the sound of her spinning-wheel through the closed door. But on entering the room he found there only a poor, wrinkled, withered little figure, crouching by the window, her eyes bent over a spinning-wheel.

"Where is Bauldour — my beautiful Bauldour?" said Pecopin to her. "Bauldour, with eyes sweetest ever seen. I have come back at last to marry her!"

The strange little withered figure tottered across the room, and with a faint cry threw herself on Pecopin's breast. It was Bauldour. She was a hundred and twenty years old!

The night's hunting which Pecopin had spent with the wild huntsmen had lasted a hundred years, but owing to the magic talisman Pecopin himself was still as young and handsome as ever.

What should he do now? He still loved Bauldour, but he could not make her younger. At last he threw away the talisman; and then, aging a hundred years in a single minute, he came back to his sweet lady and married her. And they lived together, quietly but happily, at Falkenburg.

THE TIGER THAT CAME IN THE NIGHT

A TRAVELLER'S TALE OF THE INDIAN JUNGLE

An old woodcutter brought the news — the news which an Anglo-Indian sportsman would sooner hear than any other. A tiger had killed! Its victim had been dragged into the dry bed of a small river and left there for a subsequent meal, and I proposed to be there when the brute returned.

It was on the forest-clad slopes of a Himalayan spur, the jungle extending for many miles, and though tigers were there in goodly numbers, it was exceedingly difficult to bring them to book. They wandered immense distances, and, food being plentiful, they were not often driven to visit the neighbourhood of human habitations.

It was half-past four in the afternoon when I arrived on the scene. In a patch of grass in the river-bed lay the body of a sambhar — the biggest species of deer in India. The tiger had broken its neck, devoured part of the carcase, and left the rest for another meal. My shikari, as we call the huntsman in India, made me a machan — called "mercharn" — in a tree a few paces away.

This machan consisted of a few boughs laced together with creepers into a small platform — not very unlike a huge bird's nest — and was eighteen feet from the ground.

Very stealthily I climbed into my nest, and hauled up by means of a creeper-made rope my rifle, gun, and odds and ends, and then the shikari went off, leaving me to my solitary vigil.

An Indian forest is a desolate place by day, and one can go far without seeing animal, bird, or other sign of life; but as night falls there takes place an awakening, and I was conscious of much mysterious movement in the surrounding gloom. There was a full moon, but the forest itself was all dark. On such a night there should be no missing, and my hopes were high.

Presently the noise of a stone being dislodged set my nerves on edge, and I strained my eyes in the direction of the sound. At last I could distinguish something approaching. It proved to be a hyena attracted by the smell of the kill. It crept up quickly, and began to tear at the deer.

I was watching it, when I became aware of a beautiful chital stag standing within five yards of it. He had approached in absolute silence. The chital is not unlike the tame fallow-deer of our parks, and is a particularly graceful animal. He lowered his head to browse, then jerked it up suddenly to look all round.

Suddenly he perceived the hyena, and stood gazing intently at it for a few seconds, then went off full gallop into the forest. He had hardly disappeared when a pair of porcupines passed underneath my tree, and then I had a long wait before another sound disturbed the wonderful forest silence.

This time there was plenty of noise to herald the coming visitor. It was obviously an animal or animals who knew not fear. Presently they emerged — a small herd of elephants. As a rule, elephants are inoffensive, and so their proximity caused me little alarm.

Silence fell again as they vanished

into the shadows, and I began to feel somewhat drowsy, when a loud outcry of distant monkeys brought me to the alert. This to the sportsman betokens that either a panther or a tiger is passing under the roosting-place of the monkeys. The hyena knew it, too, and, lifting his head, gazed fixedly into the forest. A while he so remained, and then slunk quietly away.

There was no drowsiness now! My ears were all eager for the faintest sound, and it came at last. It was something like the noise made by wind blowing over a field of ripe corn. It grew louder; then he emerged — the king of the Indian jungle.

The blood was swishing in my ears, so rapidly did my heart beat, and my hands shook with excitement, but I dared not wait for calmness, knowing well how a tiger can vanish in a second. There was a bang. The big cat made a terrific spring into the air, and then, before I had time to fire again, had plunged into the jungle.

I thought I had lost him, and was listening to the noise made by the rushing off of numerous animals disturbed by his roar and my shot, when five fierce, eloquent roars within a hundred yards told me that he was mortally wounded; he would have been a mile away otherwise.

Nothing could be done until morning, and even then my task would be risky, for, though a tiger is seldom dangerous until wounded, when wounded he knows no fear and does not spare anybody. There was no further need of quiet, and gladly but painfully I moved my cramped limbs, lit my pipe, and settled down.

THE KING OF THE JUNGLE STRODE TOWARDS THE BODY

At six o'clock in the morning my shikari arrived, and giving him my rifle, and taking my good twelve-bore gun loaded with bullets, I began the most exciting part of the adventure. Very cautiously we advanced through the high grass and scrub, looking for signs of the tiger's passage.

All suddenly and unexpectedly came up before us the fallen king of the jungle. There was a roar of concentrated rage, a rending apart of some dense bushes, and a general impression of a huge mouth gleaming with pink and the whiteness of large teeth, of eyes blazing with deadly hate, of armed paws outstretched. Instinctively I fired. There was a crash in the undergrowth, a heavy thud, and silence.

THE SONG THAT FOUND A KING

HOW BLONDEL, THE WANDERING MINSTREL, SANG OUTSIDE THE CASTLES OF EUROPE TO FIND HIS FRIEND THE KING

HAVING collected a debt that was owing to him at Durenstein, Black Hans, the moneylender, set out home in a state of wild alarm.

"Whatever shall I do," he muttered, "if those vile Crusaders attack me?"

The great Crusade in which King Richard of England had taken part had failed. Richard had strangely disappeared, and Europe was covered with fierce adventurers returning ragged, hungry, and penniless from the Holy Land. Travel had become dangerous, for one never knew when some broken soldier would spring out from under a bush and demand food or money at the point of the sword. This was why Black Hans looked uneasily around as he tramped along the high, rocky banks of the Danube.

Suddenly a strange, wild figure came running towards him. Black Hans trembled as he drew his sword; but the

beggar laughed, and, approaching closer, held out his weapon for him to look at. It was only a simple lute such as minstrels used in those days to sing to.

The man himself was tall and young and handsome, with long, fair hair; but his cheeks were lean and worn, and his dress was a flutter of rags.

"My good sir," he said, taking off his cap with an air which would have been dignified in a lord, but was ridiculous in him, "I do not want to fight you or beg from you. At least," he added, "I only want to beg a little information. Is there a castle near by where I could get food and lodging in return for a display of the gay science?"

"The gay science?" exclaimed Black Hans, looking at the miserable figure before him. "What is that?"

"Oh, you boors! You ignorant German boors!" cried the ragged minstrel angrily. "The gay science is the name of the new sweet poetry invented in sunny Provence. Have you never heard of Richard, the poet-king of England, who has made the gay science known from London to Palestine?"

"What about Richard of England?" said the moneylender suspiciously. "Are you looking for him?"

"What has a beggar like me in common with a king of England?" said the minstrel, with a laugh. "I am looking for food and lodging, my friend. Am I likely to get them about here?"

"Well, there's the Castle of Durenstein about a league up the river," said Black Hans sullenly. "But I doubt," he added, as he moved rapidly away, "if they want any of your new French fashions of singing and playing."

When the moneylender was out of sight, the minstrel threw his lute away and flung himself on the ground, and covered his face in his hands and wept bitterly.

"My search is all in vain!" he moaned. "Richard, my Richard, I would give my life to find you and help to set you free! But it is impossible! You must have been shipwrecked on your way from Palestine, and the tale about a secret prison is a false report made by your foes to hurt your friends."

For a long time Blondel lay flat on the ground, choking with sobs. He was a young knight of Picardy, who, like many other great lords of his time, had taken to the pleasant life of a high-born minstrel. In a tournament of song in Southern France he had met Richard, and won from him the prize for singing; and, instead of disliking Blondel for excelling him, the brave and large-hearted King of England had given him lands and made him his companion. They had lived together, composing songs in the new fashion and setting them to music.

As Blondel met with an accident, he could not go with Richard to fight with him in the Holy Land; but when a rumour spread in Europe that the king had been captured and secretly imprisoned on his way back to England, the brave minstrel-knight resolved to venture his life in finding where his king was hidden.

"It's no use crying and moaning," he said at last, rising up and looking about for his lute. "Tears will not find his prison or unlock the gate. And, first of all, I must get some food, for I am well-nigh starved to death."

He had been wandering a long time since he set out from Picardy on his search, dressed in his brightest and gayest robes. Now his shoes were worn from his feet, and his fine attire was torn into tatters. Instead of being received honourably in the great halls of the castles as a minstrel-knight, he had to slink into kitchens, where his songs won for him a supper and a bed.

Walking along the narrow gorges through which the Danube foamed and roared, he came into the plain of Vienna.

There, where the great river widened, was the Castle of Durenstein, rising from the top of a hill and surrounded by a wall of rugged rocks. At the foot, by the bank of the river, was a little village. Blondel had enough money to buy some wine and bread at the inn; then, refreshed by his meal, he wandered around the castle singing at the top of his voice.

In a low, dimly-lighted room in the castle-keep a tall, powerful man, with a finely-cut face and a head of auburn hair, was restlessly pacing up and down.

"Two years! Two years!" he was saying bitterly. "And not a single man in all my dominions has tried to set me free! I shall go mad if I think much more about it. There's John, my brother, and the Earl of Northumberland, and Longchamp and Pusey, whom I have loaded with honours and riches. They must know that the Duke of Austria is keeping me a prisoner against all the laws of God and man. But will they give a penny to ransom me? Not they! They have got hold of my kingdom, and they mean to keep it, and they will let me die here like a rat in a hole."

He looked moodily out of the narrow slit in the huge walls that served him as a window. Then on a sudden he laughed, and said:

"Let me try my hand at the gay science again!"

He walked up and down his prison-cell, turning over phrases and fitting in rhymes, and at last he took up his lute and began to sing softly to himself these lines, which are still remembered as King Richard's:

Know, men of England, Anjou, and Touraine,
And all my knights with noble hearts and brave,
Your friendship, love, and duty now are vain
To free me from the bondage of a slave.

The Castle of Durenstein, where King Richard was imprisoned, as it appears to-day

Remote from consolation here I lie,
The wretched captive of a powerful foe,
And here in grief I languish till I die—
Die, and am buried where no man shall know!

"That's a very good beginning," said Richard, recovering his gaiety. "I've learned a good deal about verse-making this year. If ever I should meet Blondel I do not think he will excel me again. Poor Blondel! I wonder what he is doing. Making love-songs for the ladies in Picardy, perhaps, forgetting he had ever a friend called Richard."

A fit of sadness again overcame the imprisoned king, and he went to the

narrow window slit and stared sorrowfully at the open country.

Suddenly he reeled back as though he had been struck.

Someone was singing below, someone he knew, and the sweet voice pierced his heart. Nearer and nearer it came, as the singer, clambering round the outer wall, approached the narrow window, where the king listened like a man in a dream.

The words of the song came clear and ringing on the evening air:

If you were housed in a hut in the vale,
And I were lodged on a hill on high,
Would you sing to me as the nightingale
Sings from a bush to a star in the sky?

It was the first verse of a song Richard and Blondel had composed together years before. None but these two knew of it, and Blondel was singing it to find his king. He had sung it outside hundreds of castles, hoping that the king would hear him and sing back the second verse.

And now, when the minstrel had given up all hope, and was sitting beneath the castle wall, his eyes wet with tears, someone from a window above began to sing in a strong voice that shook with emotion:

If I were housed on a hill on high,
And you were lodged in a lowland pass,
I would sing to you as a lark in the sky
Sings to his love in her nest in the grass.

It was the second verse of the song which only the king knew! Blondel had found his king. Here in this castle he was imprisoned.

Leaping up with joy at his discovery, the minstrel sang the first verse again, to let the king know that he was still there listening. Then, careless whether he got a lodging for the night or not, he left Durenstein, and hastened through the darkness along the path which led for hundreds of miles across Europe to the English Channel.

It was months before he reached England, but when he arrived there he sought out William Longchamp, the Lord Chancellor, who was still faithful to Richard, and in 1194 Richard of the Lion's Heart landed at the little English port of Sandwich a free man through the efforts of Blondel.

THE KING'S THREE QUESTIONS

FREDERICK THE GREAT was very fond of his guards, and knew every one of the men personally.

Whenever he saw a new recruit, he used to call him from the ranks and ask him three questions: How old are you? How long have you been in my service? Are you satisfied with your pay and treatment?

One day a young Frenchman joined the regiment, and as he did not know any German, he was taught the answers to the king's three questions in the order in which they always had to be given.

Soon after, Frederick saw the young man but, unfortunately, on this occasion he asked the questions in a different order.

"How long have you been in my service?" asked the king.

"Twenty-one years," replied the Frenchman.

"Twenty-one years!" said the king. "Then you must be very much older than you look. How old are you?"

"One year," answered the soldier.

"Upon my word," cried Frederick, "one or other of us must be mad."

"Both," said the soldier, who had been taught that this was the proper answer to give to the king's third question.

The king, of course, flew into a great rage, and the poor recruit then explained the whole matter in French, a language that the king understood perfectly. Frederick laughed heartily, and advised him to speak only a language he knew.

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THE RIDERS ON THE WIND

A WONDERFUL THING THAT HAPPENS BEFORE OUR EYES

We are growing up in a wonderful age. The youngest children have seen the coming of wonders for which the world has waited thousands of years. It has always been the desire of civilised man to fly, whether by artificial wings, by balloon, or by aeroplane.

Hundreds of attempts were made, and many, many lives were lost in these attempts of men to imitate the birds. The early balloons were successful, and for a hundred years there was no great improvement. As we all know, the balloon was a great pear-shaped bag of silk, containing gas. To this bag a basket was attached, in which the balloonists sat. The gas, being lighter than air, was able to lift the balloon, with the men. But, once in the air, the balloon was at the mercy of the wind.

The first real improvement came with the steerable balloon, for here an entirely new idea came into being. The gas had to lift the platform attached to the balloon, while a motor-engine drove a propeller, which caused the airship to move in whatever direction the steersman desired. The greatest success was attained by Count Zeppelin, a brave and skilful German. He constructed a cigar-shaped airship, fitted up with engines, and flew over hundreds of miles.

His most wonderful feats began when he started what is called an aerial express. This was an airship which carried people — of whom twenty-one were passengers and the rest officers and crew and learners.

In the car part of the airship were rooms, in which passengers sat and looked down upon the country over which they were flying. Meals were prepared in the airship and served to passengers as the great craft flew along.

But one day it was wrecked, and again men felt that true flight would not be mastered till men could make a machine heavier than air which would rise into the air just as a bird rises and flies.

None of us is too young to remember how it all began, for it seems but the other day that the Wrights, two brothers living in a little American town, startled the world by flying. It is strange nowadays, when men fly over our houses in the night, when they fly from England to France and back after tea, or from the Atlantic to the Pacific, to remember the time when Wilbur Wright and his brother Orville were making their trial flights on a lonely part of

the coast of North Carolina. Then as they were not encouraged in this country they went to France. There they worked day after day. All day long people gathered about the mysterious wooden shed, and as the days went by and nothing happened, the peasants began to jeer.

One day the great doors of the wooden house swung open, and out came Wilbur Wright, out came Orville Wright, and out came a great, ungainly thing which is very familiar now, but was something to laugh at then — a huge thing of wood and canvas, full of wires, and bars, and levers, running along on wheels; and the peasants laughed more than ever. This was the thing they had waited weeks to see, and as, at last, the machine was run into the middle of the field, the peasants jeered more than ever.

But Wilbur Wright cared nothing at all. He sat down in his seat and got ready.

"One!" he shouted.

"One!" jeered back the crowd.

"Two!" he shouted.

"Two!" jeered back the crowd.

"Three!" he shouted, and the crowd jeered no more, for Wilbur Wright was flying.

He came down from the skies never to be jeered at again, for these people who had thought him a quack, these people belonging to the most emotional race in the world, fell on his neck and kissed him. They had seen a man fly.

This is what one who saw the early flights wrote:

"Out of his wooden shed — so rough a place for the beginning of so great a thing as the flight of man — came Wilbur Wright. There was a sound of whirring wheels; a man was oiling the propellers; Wilbur Wright was moving. He dragged a clumsy stool across the floor, stepped in among the wires, filled a huge jug with petrol, and climbed up with it on to the stool. He could hardly reach with his great jug — he has not had time to make a pair of steps. But two jugfuls of petrol go into the pipes, and down he comes.

"He goes into his room, and comes out in his black leather jacket. He is going to fly. He goes out of the shed into the field, where is a simple little rail, with a pulley arrangement which he himself puts in order. For a quarter of an hour he moves about, and then the lumbering thing comes out on wheels. Slipping off its wheels, it rests on the rail. The men start the engine by turning the propellers. A dozen people take hold of a rope and pull up the weights that are to give the aeroplane momentum to start. Wilbur Wright sits down on one of the two little slabs of wood with arms like a child's swing. Then — swish! — swish! — he goes along the rail into the middle of a field, and at the end of the rail the man-bird rises in the air.

"Away he flies, on and on, and to see him is the most thrilling thing. The great lumbering machine becomes a thing of grace and beauty. It curves this way and that; it rises high and falls low; it goes straight and spins round; it dips and bends like the wings of a bird; it flies to the hills until it looks in the distance like a motor-car dashing along the snow-covered edges of the Pyrenees. It flies at the rate of forty miles an hour over the tree-tops until it has gone from sight, and then, after ten minutes, the man-bird comes back, racing a bird that flies beside him, and comes straight over our heads.

"The flying machine is alive! No longer is it a great, ungainly thing. It moves like the wings of a bird. under the most perfect government of this simple, wonderful man, flying above us and about us for half an hour, and coming down at our feet like — what shall I say to be true? — like a feather on the breeze. Like that exactly. The end of it was amazing beyond belief. This great thing, that had grown beautiful before our eyes, came down from the skies and rested gently on the ground without a tremor or a jolt, with less of that than if it had been a stick thrown up in the street and allowed to fall. It was a thrilling and splendid and historic thing."

Then suddenly all the world seemed to take to flying. Within the space of only a few months many men were building aeroplanes. France at first

took the lead, and a daring Frenchman named Blériot flew across the Channel from Calais to Dover. Then an Englishman, named Farman, who lives in France, made long flights in that country, and a man named Curtiss, an American, with a wonderful little aeroplane, did daring things with his machine both in America and in Europe. Other daring men accomplished considerable flights in the United States. Another famous flier, named Latham, tried several times to fly across the Channel, but fell with his machine into the sea, and had to be rescued by a gunboat.

A LITTLE FRENCH GIRL IN A TOY AEROPLANE THAT REALLY FLIES

Then the scene shifted to England. The bird-men came to England and had flying meetings at Blackpool and Doncaster; and Hubert Latham, by riding in the teeth of a gale, showed that the aeroplane could do far more than had been imagined, once the engine was made perfect, and the man guiding it was master of his machine.

But the great event which fixed the attention of the whole world was an aeroplane race from London to Manchester, in 1909. It was not intended to be a race. A great prize was offered by the Daily Mail to the first man who flew from London to Manchester within twenty-four hours, and an Englishman, Mr. Claude Grahame-White, set out to win it. He left London in his aeroplane one Saturday morning in May and flew to Rugby. Eighty-three miles of his journey were done between a quarter-past five and half-past eight in the morning. This young Englishman, after only a few months of practice, had flown a distance of eighty-three miles through the air.

Mr. Grahame-White was soon on his way again, and flew another thirty-four miles in rough and stormy weather.

Then something went amiss with his engine, and he had to come down near Lichfield. A heavy storm came on, and his machine was so damaged that the flight had to be abandoned.

The following week men were getting the aeroplane right again. While this was happening, a famous French flying man, Louis Paulhan, had his machine sent over to England. M. Paulhan and his mechanics worked on it and had it ready at the same time that Mr. Grahame-White's machine was ready for starting. The Englishman thought the weather was too rough, and decided to wait. The more experienced Frenchman saw that he could fly, and without delay started on the great journey. Mr. Grahame-White knew nothing of the departure of the Frenchman until friends wired to him that M. Paulhan was well on his way. Then Mr. Grahame-White started in pursuit.

In order that the bird-men might not lose their way, the wooden sleepers on a railway line running to the North were marked with whitewash. But M. Paulhan's friends had a special train in readiness. They carried a great white flag fluttering from their railway car as a signal to him, and soon they came in sight of him. But the express could not go fast enough for the aeroplane, which kept ahead of the locomotive. M. Paulhan flew till darkness came on and it was no longer safe to go farther. Then he dropped safely to earth near Lichfield, having covered 117 miles of the 186 which he had to do.

Meanwhile Mr. Grahame-White had been trying to overtake his rival, but M. Paulhan had an hour's start, which was everything, seeing that the flight had not begun till evening. Mr. Grahame-White in an hour and a half flew to Roade, a sixty miles' journey. There failing light made him descend. This delay was fatal.

He was up and out at two o'clock in the morning, determined to catch M. Paulhan by flying in the dark. He raced over Rugby in the dark, and presently day began to dawn, and he thought that all was to be well with him. But, as he neared the resting-place of his rival, the wind grew more and more fierce, and at last he was compelled to descend at Polesworth, 107 miles north of London.

Once or twice he lost himself and had to circle round to find where he was. But had all gone well he could not have caught M. Paulhan, who after four o'clock, and, braving the wind and rain, flew straight to Manchester. He arrived there at half-past five in the morning. The great prize for which he had come from France was won, the great journey of which men had so long talked was done, and all the world wondered. His actual time in flying the 186 miles was 242 minutes, not counting his stoppage at Lichfield, of course. Mr. Grahame-White did not get to Manchester.

The excitement over this feat had barely died down when a new surprise was forthcoming. Hon. C. S. Rolls had been working for some time quietly near the cliffs of Dover. Then one fine evening in June he calmly rose in his aeroplane and flew over to France. Blériot had already flown from France to England, but Mr. Rolls flew from England to France, the first man ever to do so, and instead of dropping in France, he quietly flew round, dropped a note or two to tell the people he had been there, and then flew swiftly back to Dover. He had crossed to France and back again in an hour and thirty-five minutes.

Meanwhile great interest in flying had been shown in the United States. At a great meeting in New York, airmen from all over the world competed for large prizes. They performed all sorts of fancy tricks, making figures of eight as boys do on ice, flying in and out between a row of columns or pylons set in a straight line, ascending in spirals and doing many other wonderful things. Here the world's record for height was broken also. Feats which a few months before had seemed impossible were done at this meeting as a matter of course, and almost every day. Flying seemed so easy that one forgot the danger. However, two Americans who won attention here, lost their lives in making flights a few months later. These were John B. Moisant and Ralph

Johnstone. There are many other Americans who have astonished the world by their skill and daring.

In the early part of 1911, a new man came to the front as a long distance flier. This was Mr. Henry N. Atwood, who flew from New York to Washington, and later started from St. Louis and flew the great distance of 1,265 miles to New York. Already before this page is before you Mr. C. P. Rodgers has made the journey entirely across the continent, a task which several men have set for themselves.

During 1912, several records were broken in Europe. M. Védrines, a Frenchman, made the record for speed of one hundred and five and one-half miles an hour, and another Frenchman flew 627 miles without coming to the ground. In Tunis, a man ascended 19,000 feet, more than three miles. Probably all of these will soon be broken.

AN EXCITING RACE BETWEEN AN AEROPLANE AND AN EXPRESS TRAIN
From New York to Philadelphia. For a time the train was left behind, though it won in the end

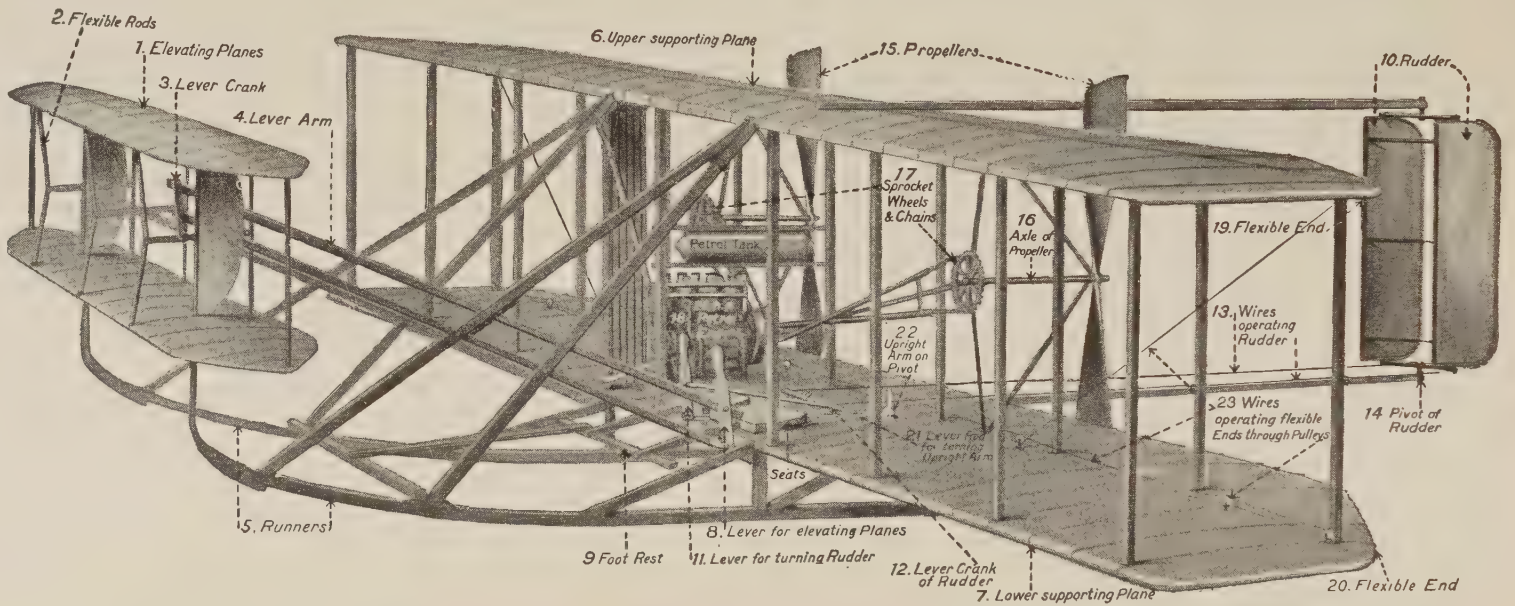
CONTINUED ON PAGE 6105.

THE NEW CHARIOTS OF THE SKY

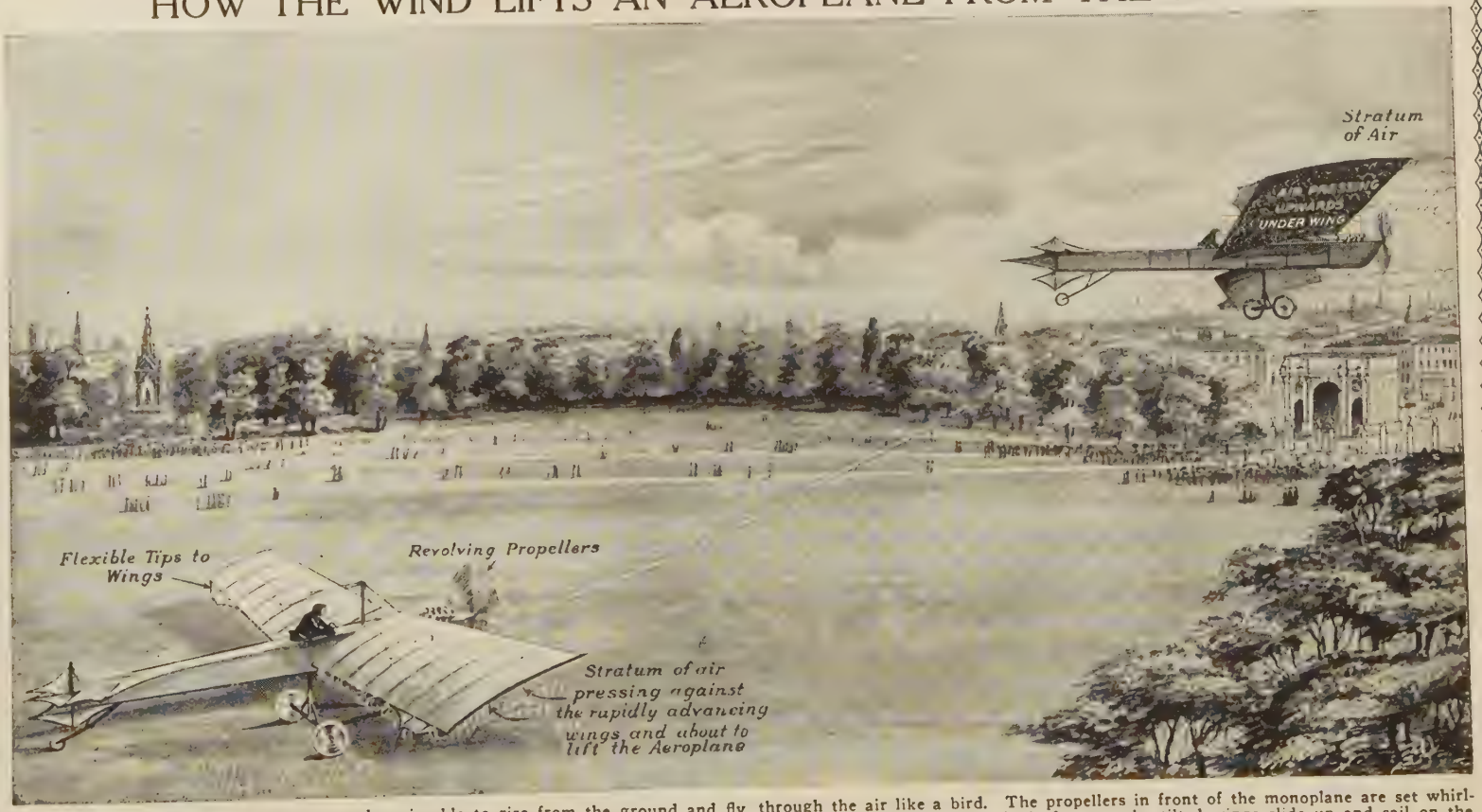
Thousands of years ago man conquered the land and the sea, but the conquest of the air is only now being realised. It is true for more than a century men have gone up in balloons, but these have always been at the mercy of the winds; although many balloons or airships that could be steered, provided the winds were satisfactory, have been made in recent years, there is always an uncertainty about a balloon. It is the aeroplanes that have brought the conquest of the air within measurable distance of achievement. We here see some of the kinds of aeroplanes that have made successful flights. No. 1 is Mr. Hubert Latham's Antoinette aeroplane with which he nearly flew across the English Channel; 2 is the Voisin biplane; 3 is the monoplane in which Blériot flew from France to England; 4 is the Curtiss biplane; 5 is Colonel Cody's aeroplane; and 6 is a Farman biplane.

A CLOSE VIEW OF THE WRIGHT AEROPLANE AND ITS PARTS

This picture will help us to understand the different parts of a Wright aeroplane. In starting a flight, the engine is first set going, and the propellers, 15, are made to whirl round at the rate of a thousand revolutions a minute by means of the chains and sprocket wheels, 17, and the axles, 16. Then the aeroplane gets up speed by gliding rapidly down metal rails upon its runners, 5. The pilot, sitting on the left-hand seat, pulls back the lever, 8. This, operating through the lever arm, 4, and the lever crank, 3, tilts up the elevating planes, 1. The air, rushing under these planes, lifts up the front of the machine and sends it gliding upward. In actual flight the wind that is created by the aeroplane travelling at forty miles an hour strikes under the main supporting planes, 6 and 7, with such force that they are found capable of buoying up the whole weight of the machine, with its pilot and passenger, in the air. When the pilot wants to make a turning movement he shifts the lever, 11, forward or backward. This, through the lever crank, 12, and the wires, 13, twists the twin rudders, 10, upon their pivot, 14. These rudders, acting on the air as the rudder of a ship does upon water, swing the aeroplane round either to the right or to the left. The same lever, 11, also answers another important purpose. Attached to its lower end is a lever rod, 21, which turns the upright arm on the pivot, 22, to the right or left. This moves the wires, 23, which run on pulleys to the ends of the main planes, and by means of these wires the flexible ends, 19 and 20, can be twisted slightly upward or downward. In the same way the lever, 11, moves wires going in the other direction, and turns up or down the flexible ends at the opposite extremity of the aeroplane. This turning up or down of the edges of the main planes corrects any tendency of the aeroplane, when in flight, to topple over upon either side. The aeronaut's passenger, when he takes one up, sits on the right-hand seat. Both passenger and pilot rest their feet upon the foot rest, 9. Placed in front of the engine in the picture can be seen a row of pipes. This is the radiator to cool the engine, which has to run at a high speed. A sprocket wheel, 17, is a kind of cog-wheel that revolves a chain instead of moving another wheel round. The engine, 18, burns gasolene, called petrol in Europe.



HOW THE WIND LIFTS AN AEROPLANE FROM THE EARTH


Stratum of Air
AIR PRESSING UPWARDS UNDER WING
Flexible Tips to Wings
Revolving Propellers
Stratum of air pressing against the rapidly advancing wings and about to lift the Aeroplane

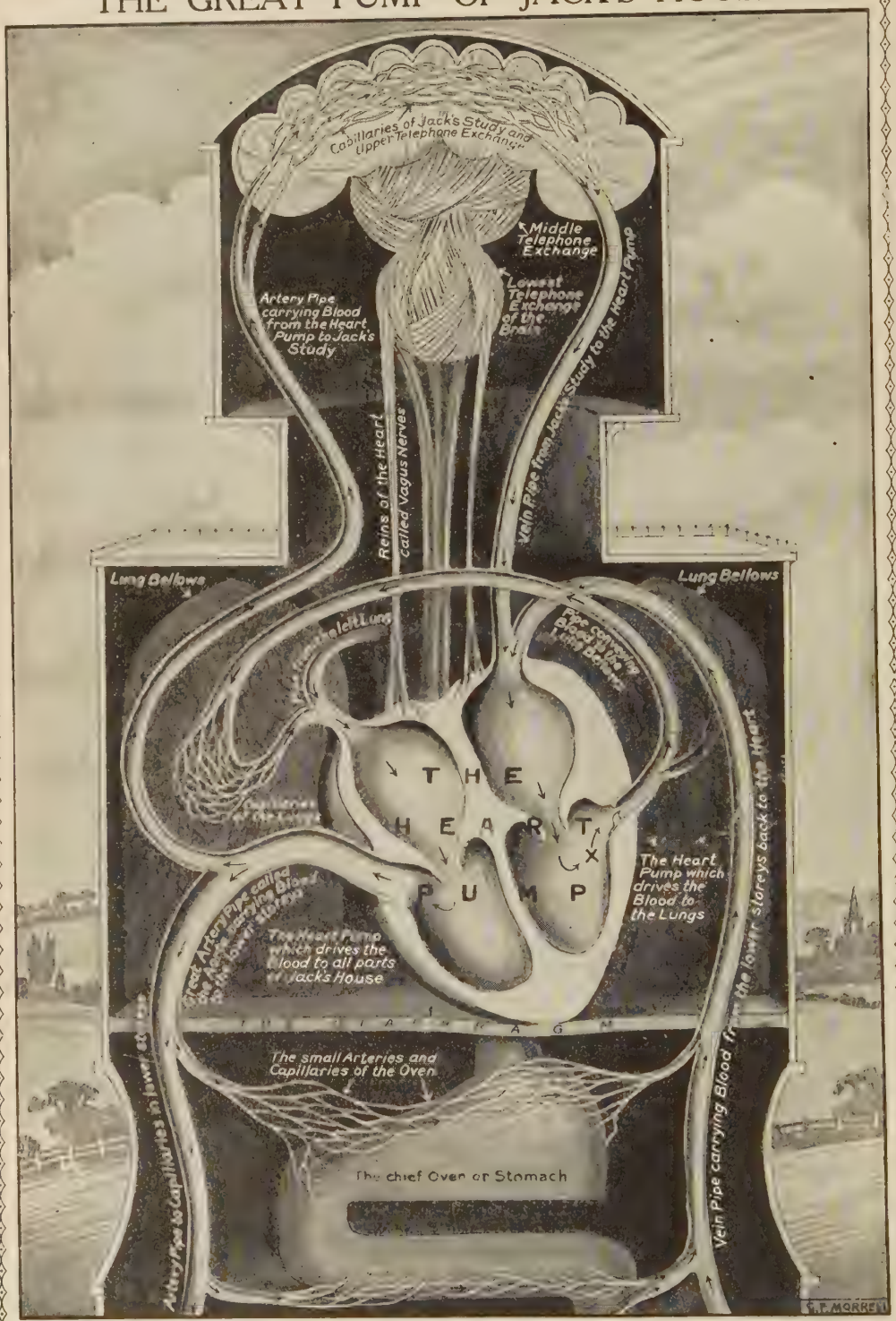
In this picture we can see how an aeroplane is able to rise from the ground and fly through the air like a bird. The propellers in front of the monoplane are set whirling by the engines, and cut a spiral path through the air, causing the aeroplane to run forward on its wheels. As it does so, the tilted wings slide up and sail on the wind, and the aeroplane rises. As the machine moves forward, the currents of air continue to press under the wings and support the aeroplane. The principle of flight is very much the same as that which is brought into play when a straw hat is lifted from our head and is blown some distance by the wind. The tips of the wings of an aeroplane are made flexible, and the aeronaut keeps his machine from overbalancing by bending the tip of the wing slightly downward on one side or the other, as necessary. This at once balances the machine if it is leaning to one side.

SOARING WITHOUT AN ENGINE, AS THE BIRDS DO

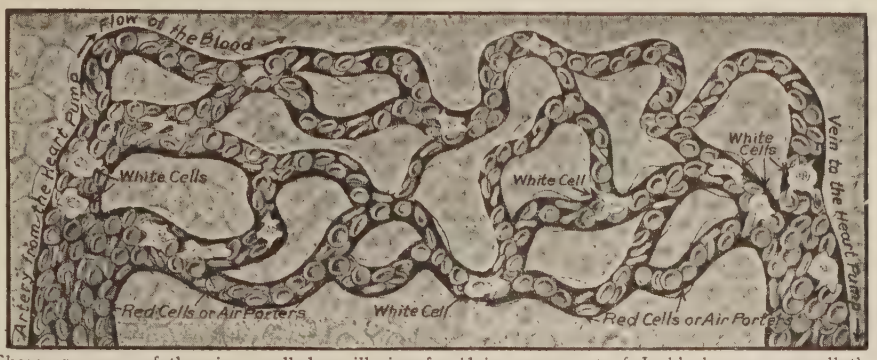
The greatest danger in aeroplanes is their liability to capsize in the air. The Wright brothers spent time studying ways to prevent this, and to make the machines more steady. During 1911 they went back to the lonely coast of North Carolina, and there on the sands tried to discover how the great birds you have seen suspended motionless in the air keep their balance. This is a photograph of Orville Wright in his new glider, which remained in the air on this occasion five minutes. It was taken at Kill Devil Hill on the coast of North Carolina. On these sands there are no trees to influence the wind currents, nor to catch the machine.

Photograph by Brown Bros.

THE GREAT PUMP OF JACK'S HOUSE


Capillaries of Jack's Study and Upper Telephone Exchange
Middle Telephone Exchange
Lowest Telephone Exchange of the Brain
Artery Pipe carrying Blood from the Heart Pump to Jack's Study
Reins of the Heart called Vagus Nerves
Vein Pipe from Jack's Study to the Heart Pump
Lung Bellows
Lung Bellows
Pipe carrying Blood to the Bellows
THE HEART PUMP
The Heart Pump which drives the Blood to the Lungs
The Heart Pump which drives the Blood to all parts of Jacks House
The small Arteries and Capillaries of the Oven
The chief Oven or Stomach
Vein Pipe carrying Blood from the lower storeys back to the Heart
Artery Pipe to Capillaries in lower storeys
DIAPHRAGM
W. F. MORRELL

This shows the pump, called the heart, in the middle of Jack's house, and we can see how ovens and corridors are linked with the top story. The heart pumps blood through Jack's body; if we start at the x in the heart, and follow the arrows, we can trace the course of a drop of blood through the body back to the heart. Capillaries of only one lung are shown. Really the capillaries spread all over the body.



These are some of the pipes, called capillaries, found in every part of Jack's house, so small that 2,000 could lie side by side in an inch. Through these pipes the blood runs to every part of the body, carrying red cells, which bring air, and white cells, the chemists that keep microbes out.

CONTINUED FROM PAGE 6018.

JACK'S WONDERFUL PUMP

AND THE LIFE-STREAM THAT FLOWS THROUGH HIS HOUSE

We have seen that the middle story of Jack's house is the pumping and ventilating story, and we know that Jack's central pump, which is to be found right in the middle of this story, is usually called his heart, and that its business is to drive the blood all through Jack's body. We must study Jack's pump, the pipes through which it drives the blood, and the blood it pumps — blood which is the water-supply of Jack's house first, but is also many things more.

The first fact about the great pump is that it is alive. From this point of view, we might almost compare it to a horse, especially as it has a pair of reins. These reins are most important, and if they are cut by an accident, or if some poison rots them, Jack will certainly die.

The reins of Jack's heart, or pump, are called the vagus nerves, and one of them runs down each side of his neck from his brain to his heart, close beside the great pipe which we can feel beating on each side of the neck. These reins are held, so to say, by servants of Jack, living in the lowest part of his brain, which is called the bulb, the lowest of the three telephone exchanges of Jack's house. So long as Jack is alive and well, these reins are never let go, but if we wish to find out what they are doing, it is necessary to watch the consequences of cutting them or poisoning them. If such an accident happens, we find that the great pump, which was beating at the rate of, say, eighty times a minute, at once begins to beat faster, but all the time weaker and weaker, until it comes to a stop, having worn itself out. The commonest and best known of the poisons which act on the heart, so that it races itself to death, is called belladonna, and it is the poison found in the beautiful berries of the deadly nightshade.

But many other things besides the deadly nightshade will affect the beating of Jack's pump, either by making a pull on the reins, or by letting them fall loosely, as it were. Great pain or fear will sometimes cause such a tug at the reins that Jack's heart stops on the spot, and he must die in a few seconds, unless the tug at the reins relaxes. It usually does so very soon, and all we say in such cases is that Jack has fainted. He faints because the pump ceases to send blood up to his study, and he cannot work.

reins, so that the pump beats much more quickly and, at first, more violently. We all know the disagreeable sensation in our chests when this happens. As soon as the disturbing cause is past, the reins are tightened up again, and the heart begins to beat in an orderly and quiet way as before. In other cases, we find that poisons — such as the poisons in tobacco — neither tighten the reins nor relax them, but keep on jogging at them, so that Jack's heart beats irregularly, instead of evenly.

THE REINS OF THE HEART WHICH ARE WORKING FOR EVER NIGHT AND DAY

The value of these nerves, or reins, of the heart is that they are in connection with every part of Jack's house, and by their action can make his pump beat slower or faster, according to the special needs of the time. Also their existence and action mean that Jack always has something in reserve for special demands. If he is chased by a bull, his nerves will relax their control for a little, and will let his heart go to serve his legs when they are much needed. But from the beginning to the end of the history of Jack's house these reins are always acting to some extent, day and night, and Jack has no better or more necessary servants than those nerve-cells in his lowest telephone exchange.

The heart itself is strictly and literally a pump — not like a pump, but actually a pump. There are two kinds of pumps, those which press, or force, a fluid to move, and those which move it by suction. The pump in Jack's house is a force-pump of which the walls are alive.

THE FOUR CHAMBERS WITH THE LIVING WALLS

But, though the heart is truly a force-pump, it is much more complicated and infinitely more wonderful than any other pump in the world. It has four spaces, or chambers, inside it, each with its own living wall, and each with a strong and perfect valve, so that the blood can only move forward, in the direction which Jack requires. The muscular walls are made of living cells, long and narrow, which have the power of making themselves short and thick. These living cells, or muscular fibres, are Jack's humble but invaluable servants, his "drawers of water," and they are arranged in the walls of his pump in a most complicated way, which it would take a book to describe.

The other great fact about the pump is that, at various places in its walls, it contains numbers of nerve-cells, which order the muscle-fibres to contract. But it would never do for Jack's pump to work independently without reference to the needs of the whole, so these nerve-cells, which rule the muscle-cells of the heart, are themselves under the control of the vagus nerves, and also of another pair of nerves, which do not act all the time, but can be used on occasion. When they act they make the heart beat more powerfully.

HOW THE PUMP DRIVES THE LIFE-STREAM ROUND AND ROUND

A great Englishman, William Harvey, found out what happens when the four chambers of Jack's pump beat and drive the blood. Harvey found that the blood goes right round the whole of Jack's house in a circle, or, rather, in two circles, which meet in the heart. The pump is really two pumps — a left pump, which drives the blood to all parts of Jack's house, and a right pump — not quite so strong — which only drives it to the lungs in order to receive pure air and get rid of foul air. We shall understand this better when we come to study the ventilation system.

We have now got the picture of this great pump, placed in the very middle of Jack's house, and beating away, night and day, so long as he lives, driving his water-supply through a system of closed pipes, which leave his heart and return to it; but we shall not see any use in this process unless we understand that these pipes are of a very unusual kind.

The various pipes have various names — arteries, veins, and capillaries. Not any of these, however, have any holes in them, and, so far as we can discover by looking at this water

system, it simply goes round and round within these closed pipes.

That would be a perfectly useless performance if it were so. But the smaller pipes, called capillaries, because they are as fine as hairs, are exactly what the pipes of an ordinary water-supply ought not to be, *for they leak*, and that is the essential point of the whole system. They leak both ways, so to speak, letting all manner of things leak out of the blood, and also letting all manner of things leak into it through their walls. The whole object of Jack's pump, and of this system of pipes, is to allow this leakage in and out, through the walls of the capillaries.

In one other point, above all, do these pipes differ from those of any ordinary water-supply. They are lined with living servants of Jack, muscle-cells rather like those in the great pump itself. Thus the size of the pipe in any given place can be altered at will — or, rather, not at will, for these servants are controlled from Jack's lowest telephone exchange, and not by his will at all. They are under the control, everywhere, of two sets of nerves, one set making them contract and narrow the pipes, and another making them relax and widen the pipes.

WHAT IT IS THAT HAPPENS WHEN WE BLUSH

We see the consequences when, for instance, we blush, and feel a flood of warm blood surging through our cheeks. The order has gone forth, quite apart from or even against our will, to open the sluice-gates, and then the blood pours through into the capillaries of the face. After every meal, the walls of the stomach are made to blush in just the same way; and Jack's house could not exist if it were not for these automatic arrangements, or "reflex actions," as they are called, whereby his lowest telephone exchange controls his pump and his pipes.

And now it is time to study the marvellous fluid which is driven by Jack's pump through the system of pipes which we call his blood-vessels. What is it made of, and what is the good of it?

In the first place, it is the water-supply of Jack's house. This is no small matter, for water is far more necessary in his house than in any other. It is certain that all kinds of houses which living things inhabit — animals, or plants, or men — require water. In Jack's case the water is entirely taken in by his mouth — not by his skin at all; just as, in the case of a tree, the water is all taken in by the roots, not by the leaves, however wet they are.

THE PRECIOUS THINGS THE RIVER CARRIES

This water runs down Jack's red lane, and is picked up by the capillaries that line the walls of his great corridor. Then, of course, it forms part of his blood, and is driven along by Jack's pump. The other half of the story is that, just as the water leaked *into* the pipes at one place, so it leaks *out* of them at others. It is always doing so.

The water which enters the blood from the central corridor leaves it by leaking through the capillaries of the kidneys, the capillaries of the skin, and the capillaries of the lungs. This leakage of water is always going on. Every breath we breathe out contains water; water is always leaving by the skin, and water is always being filtered through the kidneys. In all these cases the water carries with it rubbish, so that his water-supply is also a drainage system.

THE FOOD FOR JACK'S MILLIONS OF SERVANTS

This, however, is no ordinary water-supply. It is a river of life, ever flowing, and carrying on it, or, rather, in it, many things just as necessary for the house as the water itself. Indeed, after food has been chopped up and cooked in the kitchen, all the useful parts of it are taken into the blood, just like the water. The pump, therefore, pumps not merely water, but also food.

Here, again, comes in the beauty of the fact that the smallest pipes of this water system are so thin that they leak; and, more especially, that they leak in such a way that they let through

only what is wanted. For now we come to the *real* eating that goes on in Jack's house. All his millions and millions of servants require food, and one of the great duties of his pump is to carry their food to them as they work away in the dark.

THE RED AND WHITE SERVANTS WHO GET OLD IN SIX WEEKS AND DIE

Thus the blood which is always being pumped from the heart, and has first reached the heart carrying all kinds of food and fuel from Jack's central corridor, is sent to every part of Jack's body; and leaks through the walls of the capillaries, together with much water, producing a fluid called lymph, which is the prepared food for all Jack's servants — the chemists in his laboratories or glands, the strong slaves that make up his muscles and so on. So the blood is not only water, but food also, for Jack's living servants, and it is just because they require food and water that Jack requires them.

This life-stream, carrying food everywhere, is crowded also with living servants of Jack, some white and some red. The red ones never leave the stream. They are born inside Jack's bones and join the blood as it flows through the marrow of the bones. Then, for about six weeks, they travel round and round Jack's body, until they get old and die, and break up. All this time their important duty is to carry fresh air from Jack's ventilating system to every part of his body.

THE WANDERING CHEMISTS WHO HELP JACK IN TIME OF DANGER

Jack's living servants are always breathing, and need air. A little air can be dissolved in the blood and carried along, but not enough for the needs of Jack's servants. The rest is carried by the red porters inhabiting his blood, and as they pass through thin-walled capillaries they give up this air, and then are pumped along until they reach Jack's lungs again, where each of them gets a fresh load of air.

If there are too few of these red porters in Jack's house, he is pale, gets out of breath too easily, and suffers from headaches. Sometimes, if he swallows a little iron for a few weeks, his red bone-marrow will make many new red porters, and he will be better.

The other inhabitants of the blood are the white cells, which carry part of Jack's fuel from his great corridor to his liver. It has been discovered, too, that they are a sort of wandering chemists, producing special substances for the benefit of Jack's house. For instance, if one of Jack's blood-vessels is broken, by a cut or a scratch, or at any other time, of course the blood begins to leak out all together; and if this went on long enough, Jack would die. But the white chemists of his blood produce, just at the right moment and the right place, a substance which turns the blood solid, so that it flows no longer, and the bleeding is stopped.

But we never see the white cells at their bravest until a burglary occurs in Jack's house — a thing which often happens. We shall find how the white cells are prepared to die by millions for Jack, and how they kill the intruders who seek to kill him. The whole story is wonderfully interesting.

HOW YOU MAY FEEL THE GREAT PUMP BEATING

Now put one forefinger on the front of the other wrist, and feel your "pulse." Then feel another pulse at the side of your neck, and then another crossing the hard bone just in front of your ear. These are a few of the places where we can notice how the pipes swell at each beat of the great pump — swell to the fluid which is water-supply, food-supply and air-supply, and in which swim porters and soldiers. If the pump beats eighty times in a minute, think how many times it must beat in a life of eighty years, resting only between the beats, and with no wages but just enough to keep itself going.

This is the tireless, faithful heart, and we need not wonder that in all languages it is the symbol of courage which no dangers can daunt and of service which is true till death.

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John Milton as a boy, a youth, and a man

CONTINUED FROM PAGE 5972.

JOHN MILTON AND HIS POEMS

JOHN MILTON, whom good judges of books place next to Shakespeare among English poets, trained himself from boyhood to be a poet. Early in life he dreamed of writing something the world "would not willingly let die."

We cannot wonder that Milton's genius, cultivated studiously from youth, became formal and classical in its expression, and quite unlike Shakespeare's. Thrown on to the world to shift for himself, Shakespeare adopted any prevailing style, and poured forth his ideas with a careless profusion; whereas Milton, born in comfortable circumstances, and aiming at being a great author, thought and wrote and read, and read and wrote and thought, that he might produce flawless poems. He had published hardly more verse than one of Shakespeare's plays when he reached the age at which Shakespeare died. His greatest works came later.

Milton's birth was nearly eight years before Shakespeare's death. He was born on December 9, 1608, at the Spread Eagle, Bread Street, off Cheapside, London, the very street in which stood the Mermaid Tavern, where Shakespeare met the friends who wrote plays with him.

Possibly before he was eight years old the studious, girlish-faced boy, John Milton, may have seen Shakespeare pass down Bread Street to the Mermaid, on a visit from his country home.

Milton's father, a prosperous law clerk living at the sign of the Spread Eagle, was a man of refinement, a lover of books, devoted to music, and not negligent of art, though a Puritan in religion. He was proud of his handsome son, for he had him painted by a good artist at the age of ten. The boy went to St. Paul's School when he was twelve, and to Cambridge in his seventeenth year. From a child he was an eager reader, a writer, and a rhymer. The hymn

> Let us with a gladsome mind
> Praise the Lord, for He is kind,

a paraphrase of the 136th Psalm, was written by Milton when he was fifteen, and before he was twenty he had produced much Latin verse, and was known at the University as a scholar and poet.

This handsome young Puritan, described by one who knew him as "a harmonical and ingenious soul in a beautiful and well-proportioned body," determined to be a pure-minded, good man, and to write great poems for distant generations.

Noble poems, he felt, should be *lived* by the man who wrote them. The real beginning of Milton's poetry is one of the loveliest stories in the world. It was Christmas Eve in 1629. John Milton had just turned twenty-one. The starry night mingled in his heart wistful thoughts of his own God-given poetic gifts, and devotion to the Saviour who on that night long ago "Our great redemption from above did bring," and these thoughts shaped themselves into an "Ode on the Morning of Christ's Nativity." The poet begins the consecration of his pen by asking:

Say, Heavenly Muse, shall not thy sacred vein
Afford a present to the Infant God?
Hast thou no verse, no hymn, no solemn strain
To welcome Him to this His new abode,
Now while the heaven, by the sun's team untrod,
Hath took no print of the approaching light,
And all the spangled hosts keep watch in squadrons bright?

See, how from far, upon the Eastern road,
The star-led wizards haste with odours sweet:
O, run, prevent them with thy humble ode,
And lay it lowly at His blesséd feet;
Have thou the honour first thy Lord to greet,
And join thy voice unto the angel-choir,
From out His secret altar touched with hallowed fire.

Then follows a hymn telling of the coming of the Babe to Bethlehem and the retreat of the false gods.

This consecration of his Muse was renewed by the poet on his twenty-third birthday, when, in a sonnet, he resolved to use his Gift "as ever in my great Task-master's eye."

Nine years later the poet had not really begun his life's work. He had, indeed, barely finished his careful apprenticeship. Let us see what had happened. He had left Cambridge at twenty-three, a Master of Arts, popular and honoured; had lived quietly in retirement, with his father, chiefly at Horton, near Windsor, having given up an idea of being a clergyman, as he once intended; he had written two masques, or domestic play-scenes, and three formal poems of measured beauty; and he had travelled for fifteen months on the Continent, where he had been received by distinguished men, including Galileo. All this time he was preparing in thought and by wide reading for the composition of a great poem. The subjects that appealed to him most strongly were one from early British history of King Arthur and his Knights of the Round Table, and the other of the angels fallen from heaven and man's loss of Paradise.

Of the poems written as preliminary exercises during these years of training, "Arcades," a masque set to music by Lawes, one of the king's musicians, was a slight work just suited to the open-air performances then fashionable. "Comus," another masque, performed at Ludlow Castle, and interspersed with songs, for which Lawes again made the music, is a beautiful poem showing how virtue may pass unscathed through temptation, a truth illustrated by Milton's own life. This is his testimony: "I take God to witness that I lived untouched from all profligacy and vice, having perpetually before me the thought that I could not escape the eyes of God."

"Comus" tell how a lady, pure of heart, is lost by night in a wood, and is met by an evil-minded magician disguised as a shepherd, who uses all his power to deceive her, but

No evil thing that walks by night,
In fog or fire, by lake or moonish fen,
Blue meagre hag, or stubborn unlaid ghost
That breaks his magic chains at curfew time,
No goblin, or swart fairy of the mine,
Hath hurtful power o'er true virginity.
So dear to Heaven is saintly Chastity,
That, when a soul is found sincerely so,
A thousand liveried angels lackey her,
Driving far off each thing of sin and guilt.

One of Milton's early poems, "L'Allegro," is descriptive of how a day may pass with a man whose mind is inclined to thoughtful mirth; and another, "Il Penseroso," tells how a morning may pass when one is in a pensive mood. In each Milton is the man, and his mind is full of poetical thoughts, drawn partly from his reading of ancient and modern poetry and partly from observation of Nature.

THE COUNTRY HOME OF JOHN MILTON

Milton's cottage at Chalfont St. Giles, where the poet went to escape the great plague

Milton's first love — From the painting by G. H. Boughton, R. A.

A form of Milton's lovely gift of song was his way of using the sound and sway of words for the brighter or darker colouring of the thought he was expressing. Thus "L'Allegro" trips to its own gaiety; "Il Penseroso" has a statelier measure; and the third of Milton's earlier poems, "Lycidas," a lament for the death of a college friend drowned in crossing to Ireland, has a mournful sweetness that for ever haunts the reader. It was customary at Cambridge to write a poem on the grave of a scholar-friend, and Edward King, the friend to whom Milton gives the poetic name of Lycidas, was himself something of a poet. Milton had written several elegies, but never before with the feeling shown in these lines that echo and re-echo beauty of tone.

Yet once more, O ye laurels, and once more
Ye myrtles brown, with ivy never sere,
I come to pluck your berries harsh and crude,
And with forced fingers rude
Shatter your leaves before the mellowing year.
Bitter constraint, and sad occasion dear
Compels me to disturb your season due;
For Lycidas is dead, dead ere his prime,
Young Lycidas, and hath not left his peer.
Who would not sing for Lycidas? He knew
Himself to sing, and build the lofty rhyme.
He must not float upon his watery bier
Unwept, and welter to the parching wind
Without the meed of some melodious tear.
For we were nursed upon the self-same hill,
Fed the same flock, by fountain, shade, and rill,
Together both, ere the high lawns appeared
Under the opening eyelids of the morn,
We drove afield, and both together heard
What time the gray-fly winds her sultry horn,
Battening our flocks with the fresh dews of night,
Oft till the star that rose at evening bright
Towards heaven's descent had sloped his westering wheel.
But oh! the heavy change now thou art gone,
Now thou art gone, and never must return!
Thee, shepherd, thee, the woods, and desert caves,
With wild thyme and the gadding vine o'ergrown,
And all their echoes, mourn.

All this was formal according to the scholarly fashion of the times, but it was beautiful beyond all other formal English verse.

When, late in 1639, Milton returned from his Continental travels, he started a school in London, and took part in the political disputes of the times by writing pamphlets in defence of the Parliamentary party, and by setting forth his views on liberty. After the execution of Charles I., he was appointed Secretary of Foreign Tongues to Cromwell, and held the post till the Restoration, in 1660, although he had become totally blind eight years before. It was not till he was about fifty years old that he began the poem that has given him lasting fame.

His twenty years of public controversy made his name known throughout Europe, but produced for English literature only two lasting works in prose, and about a dozen sonnets. The prose works were the eloquent "Areopagitica" — a defence of the right to print what one wished — and a letter on Education, which will remain interesting as a record of what schoolmasters of Milton's day thought it possible a student might learn. Milton judged other men by himself.

Milton's first wife, whom he had married in 1643, died nine years later, in the year of his blindness, leaving him with three daughters. Four years afterwards he married again, this time happily; but his wife died after a year, her death calling forth one of his most touching sonnets. As the Protectorate drew to a close, Milton turned to the task of writing the poem he had always meant to write, and probably it was fairly well advanced when the return of Charles II. caused the poet to hide from fear of his political enemies. They, however, allowed him to live in peace, and perhaps by 1653, certainly by 1655, "Paradise Lost" was finished. In 1662 the poet had married, happily, a third wife, and the remainder of his life was spent peacefully.

"Paradise Lost" was not published till 1667. For it Milton or his wife received £18 from the printer.

The writing of "Paradise Lost" was, to Milton, a religious exercise. His aim was to "justify the ways of God to man," and he began by humbly asking the Divine Spirit to instruct him while he told of the fall of angels and of man. A spirit of profound reverence, suiting

JOHN MILTON'S MIND IN PARADISE

The painter of this picture, showing John Milton dictating "Paradise Lost" to his two daughters, has given us a sublime conception of the great mind of the poet soaring in Paradise.

so well the dignity of the blank verse, is preserved throughout. The tone of the poem is lofty, majestic and pure.

No other poet has such power of imagination, creating scenes and beings beyond the reach of human experience, and giving them life, pictured in great words.

The drama of the fallen angels who were cast from heaven for defying God, based on some hints in Scripture, was common in a rude form in Milton's day, but he built it, by his great fancy, into a whole that will live for ever, in the eye of anyone as real as the most real sights of the solid earth.

He begins the story when the rebel angels, cast "with hideous ruin and combustion down to bottomless perdition," regain their steadfastness of mind in the midst of the fiery gulf. Satan, the great rebel chief, is the first to recover himself and make his way to the shore of the "inflamed sea." There he calls his hosts around him in orderly array, and Azazel, "a cherub tall," unfurls his mighty standard. Here is the picture of the bad, sorrowful angel as he prepares to speak to his downcast host of followers:

He, above the rest
In shape and gesture proudly eminent,
Stood like a tower. His form had not yet lost
All its original brightness, nor appeared
Less than an Archangel ruined, and the excess
Of glory obscured: as when the sun, new-risen,
Looks through the horizontal misty air
Shorn of his beams, or, from behind the moon,
In dim eclipse, disastrous twilight sheds
On half the nations, and with fear of change
Perplexes monarchs. Darkened so, yet shone
Above them all the Archangel. But his face
Deep scars of thunder had intrenched, and care
Sat on his faded cheek, but under brows
Of dauntless courage and considerate pride,
Waiting revenge.

This great chieftain of the underworld then speaks to his comrades in guilt and excites them to further war, but war by guile, against Man, that thereby God may be grieved.

"But these thoughts
Full counsel must mature. Peace is depaired;
For who can think submission? War, then, war
Open or understood, must be resolved."
He spake; and, to confirm his words, outflew
Millions of flaming swords, drawn from the thighs
Of mighty Cherubim. The sudden blaze
Far round illumined Hell. Highly they raged
Against the Highest, and fierce with graspéd arms
Clashed on their sounding shields the din of war,
Hurling defiance toward the vault of Heaven.

The exiled fiends now proceeded to build themselves a gorgeous palace-home, Pandemonium, and there they sat plotting —

A thousand demi-gods in golden seats.

They resolve that they will try to injure man, of whose creation in the Garden of Eden they have heard rumours.

Satan volunteers to go, and, aided by Sin and Death, comes at last through dreadful chaos to where the world hangs from heaven by a golden chain.

The poet now bursts into an invocation to Light as a prelude to a picture of heaven, and pitifully laments his own blindness.

With the year
Seasons return; but not to me returns
Day, or the sweet approach of even or morn,
Or sight of vernal bloom, or summer's rose,
Or flocks, or herds, or human face divine;
But cloud instead, and ever-during dark
Surrounds me, from the cheerful ways of men
Cut off.

In heaven God sees Satan approaching the world, and foretells to his only Son how man will be tempted and will fall, but the Son declares that He will become man and bring salvation to the race.

Satan, now flying toward the earth, disguised as a stripling cherub, meets the Archangel Uriel, and, though Uriel is "the sharpest-sighted spirit of all in heaven," Satan deceives him into pointing out the way to Adam in Paradise, for angels are so pure that they cannot discern hypocrisy.

Lovely descriptions of Paradise follow. So sweet is the place, and so noble

are Adam and Eve, "God-like erect, with native honour clad," as they pass hand in hand,

For contemplation he, and valour formed,
For softness she, and sweet attractive grace,

that Satan himself almost relents, and grieves over the evil work he has come to do. Meantime, Uriel, who suspected

Had in her sober livery all things clad;
Silence accompanied; for beast and bird,
They to their grassy couch, these to their nests
Were slunk, all but the wakeful nightingale.
She all night long her amorous descant sung.
Silence was pleased. Now glowed the firmament
With living sapphires; Hesperus, that led
The starry host, rode brightest, till the Moon,
Rising in clouded majesty, at length

MR. OLIVER CROMWELL VISITS MR. JOHN MILTON

This fine picture, painted by Mr. David Neal, is printed by permission of the Berlin Photographic Company, New York.

Satan of looks "alien from heaven" as he was flying towards the earth, descends and warns Gabriel, chief of the angelic guards of Paradise, to keep careful watch.

Now came still Evening on, and Twilight gray
Apparent queen, unveiled her peerless light,
And o'er the dark her silver mantle threw.

Adam and Eve retire to rest, and the angel-guards, Ithuriel and Zephon, searching the garden, find Satan squatting like a toad close to Eve's ear to taint her dreams.

Him thus intent Ithuriel with his spear
Touched lightly; for no falsehood can endure
Touch of celestial temper, but returns
Of force to its own likeness.

So Satan changes into his own form "of regal port, but faded splendour wan," and, after some altercation with his captors, flies away and hides himself for seven nights, circling round and round in the shadow of the earth.

In the morning Adam and Eve, lowly bowing and adoring, offer to their Maker their hymn of praise. The Almighty now sends to Eden the Archangel Raphael, who warns Adam of his danger, and tells him the story of Satan's disobedience and fall. He also tells how the earth began, and why — in order that another race, that of man, might take in heaven the places of the outcast angels, lest Satan should feel a pride in having "dispeopled heaven."

Satan now returns and takes the form of a serpent, which then was a handsome creature. Eve that morning suggests to Adam that they shall work apart in the garden till noon; he doubts the wisdom of it, but at last gives way after urging her to be watchful.

For, searching through the garden, Satan discovered her alone, and by flattery persuaded her to disobey the command of God and eat of the forbidden Tree of Knowledge. Fearing the effect may be separation from Adam, she resolves that he, too, shall eat, that they may live or die together; and

He scrupled not to eat
Against his better knowledge, not deceived,
But fondly overcome by female charms.

The guilty pair soon become remorseful, unhappy, and quarrelsome. Satan, returning to Pandemonium, is received with loud applause, which changes into a hiss as he and all his hosts are turned into crawling snakes.

After a time both Adam and Eve feel "sorrow unfeignéd and humiliation meek" for their fault, and the Archangel Michael is sent to tell them that their repentance will be accepted by God, and that at last the race will be redeemed; but meantime Paradise can no longer be their home. The angel having led them forth,

Some natural tears they dropped, but wiped them soon,
The world was all before them, where to choose
Their place of rest, and Providence their Guide.
They, hand in hand, with wandering steps and slow
Through Eden took their solitary way.

"Paradise Regained," written before "Paradise Lost" was published, was not printed till four years later — that is, in 1671. It tells of the temptation of Christ by Satan in the wilderness; but this later Satan is a much less powerful conception than the Satan of "Paradise Lost," and the poem, by comparison, is tame.

With "Paradise Regained" was included "Samson Agonistes," or Samson the Wrestler, the last of Milton's writings, a drama modelled on the Greek style, telling a story of profoundest pathos. The picture of Samson, shorn, blind, in the midst of his enemies, with the religious hopes of his nation beclouded, is a picture of Milton himself in his latter days.

The story is nobly told, and when the heroic end comes we feel the appropriateness of the calm lament —

Nothing is here for tears, nothing to wail
Or knock the breast; no weakness, no contempt,
Dispraise or blame; nothing but well and fair
And what may quiet us in a death so noble.

Three years after the publication of "Samson" Milton died, not an old man as we count age now, not yet sixty-six, but his strenuous life passed, and his noble youthful ambitions fulfilled. He is buried in St. Giles's Church, Cripplegate, London, and no purer or more lofty spirit has ever joined that

Garden of death where the singers whose names are deathless
Singing together make music unheard of men.

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A GREAT ARTIST'S VISION OF CREATION

Doré's picture of the creation of birds and sea animals in the childhood of the world. This is one of the famous French artist's illustrations to Milton's "Paradise Lost."

THE MOTOR-CAR THAT GRANDMA RODE IN

One of the earliest motor carriages to run on the roads in England

A wonderful steam motor carriage that ran between London and Birmingham in 1832

A wonderful motor coach driven by steam more than eighty years ago

CONTINUED FROM PAGE 6089.

TRAVELLING LONG AGO

HOW OUR ANCESTORS TRAVELLED

Most of us have learned how railway travelling came into being, and we remember, therefore, the strange difficulties our ancestors had in getting about the country in the days before the iron horse.

But many of us have not thought, perhaps, of the troubles which lay in the way of getting from town to town, or about the towns themselves, in the olden days such as those in which Shakespeare lived. A man who was setting out on a journey of a hundred miles by road thought it so perilous an adventure that before starting he would sometimes sit sadly down and make his will, and bid farewell to all his friends, in the belief that there was every chance of his never seeing them again. Well, the dangers of town travel were quite as real and alarming as those which were supposed to await the daring man who travelled from London to York by the stage-coach.

The streets were not lighted, and after dark the smaller thoroughfares teemed with robbers, who killed or robbed without hesitation. Highwaymen, mounted on swift horses, prowled about the outskirts of London, and footpads infested the streets of the city itself. Therefore, except for those who were rich enough to keep a coach, to venture into the streets at night was a serious undertaking not to be dreamed of unless link-boys, carrying flaring torches, walked before the party to light up the way.

Except on horseback or by coach, there was no way of getting about London save by walking or taking a boat on the Thames. It was not until the year 1605 that the first cab ever seen in England appeared on the streets of London. A few old coaches which had been sold by private owners were bought, and sent forth for public hire. They were called hackney coaches. There is some doubt as to the meaning of the name, but the belief is that they were so called because the first cabs started from Hackney. The new idea became very popular. It was a great thing for Londoners of that age to be able to go into the streets, call a cab, and ride to the place to which they desired to go.

To those who could afford to pay the fare, it was as if the magic carpet had suddenly been placed at their dis-

posal. Ladies could go out in nice dresses and shoes, saved at least from the horrible condition of the streets and roads, which at that time were a disgrace. The London highways were then full of pits and holes, in which collected mud and filthy water and garbage thrown from shops and houses. The new carriage might bump and jostle as it crashed over these uneven ways, but, at any rate, the rider would arrive dry-shod and with costume unspoilt.

But the public never gained an advantage of this sort without a great outcry from somebody or other. The Thames boatmen were furious at the success of the cabs, and one of their number, John Taylor, called "the water poet," wrote an angry pamphlet against the cabs and the people who used them.

Soon the success of the coaches induced an old retired sea captain, named Baily, to set up coaches specially built for the purpose. He did not buy the old, worn-out family coaches, but built smaller and lighter vehicles, which were a great improvement. Owing to the badness of the roads, these required two horses to pull them; but it was a great thing to get them at all, for here was a new idea — carriages made specially for the convenience and comfort of people who could not afford to have their own.

The new cabs took up their position where St. Mary's Church now stands in the Strand, which therefore became the first public cab-stand in Great Britain. The new vehicles were a great success, and they were speedily copied by other men.

The King who tried to stop the cabs

All sorts of objections were raised against them. People at that time could not understand that the right to ride should be enjoyed by any but the rich. People complained that the cabs wore out the roads — these wonderful roads which were already full of chasms and pitfalls. They did not see that they must build better roads; they simply cried out that the cabs must be prevented from running. Charles I. took sides with the enemies of the cab, and issued an order declaring that the cabs were unnecessary and dangerous, and that their numbers must be limited.

They broke up the roads, said the king, and made the price of hay and horse-provender dear. Therefore, no cab should be tolerated in London or Westminster unless it were hired for a journey of at least three miles out of the two districts named. Moreover, no cab was allowed to go to a street in London or Westminster unless the owner of the cab kept four horses, which should be at the service of the king whenever he required them.

When people were carried about in sedan chairs in England

But even King Charles could not sweep away so desirable an aid to travel as the cab without offering something in exchange, and the substitute that he offered was the sedan chair. This had just been introduced into England from the Continent. It was a vehicle like a small cab, but it had no wheels, and men were to carry it on two stout poles. A Court favourite was to have the sole right of providing these chairs and of drawing the money which they earned.

People cried out against the new invention. They hated the thought of men being employed as beasts of burden. But the idea soon became popular, and people had sedan chairs built for private use all over the country. At Peterborough they were used until 1860; Exeter had one until 1879; Newcastle until 1885; and Bury St. Edmunds until 1890.

Happily, the sedan chairs did not kill the cabs. Heavy taxes were put on these vehicles, which were so much disliked by Charles II. that he issued a proclamation forbidding them to be used at all. No notice was taken of this, and, after the Great Fire had led to the making of wider streets, the number of cabs increased very rapidly.

The coming of the hansom cab

The great change came with the appearance of the hansom cab. Many different types were tried. Some opened at the back, with the driver sitting perched high up above the door; others had the driver's seat at the side, and in all sorts

of queer positions. It was Joseph Aloysius Hansom, the architect who built Birmingham Town Hall, who designed the cab which bears his name. The hansom was patented in 1834, but since then has been greatly improved. It was the favourite vehicle for travelling about London until the motor-cab appeared.

But cabs are for the few, and the hansom brought no advantage for the masses of the people, who could not afford to take a cab. For these came the omnibus, first seen in London in 1829. It was not an English invention. The first bus appeared in Paris in 1662. The idea originated with Blaise Pascal, the great writer, and was carried out under favour of Louis XIV., the "Grand Monarch." After the first few months the omnibus did not pay, and Paris saw no more omnibuses for another 150 years. Soon after their revival in Paris, a Frenchman named George Shillibeer gave London its first buses. They ran from Paddington to the Bank of England, at a fare of one shilling for the whole journey, and sixpence for the half journey. The service started on July 4, 1829, and the vehicles, first called omnibuses, came to be known as "shillibeers," after their inventor. Shillibeer provided papers for his customers to read in the bus, but a rival owner did still better by fitting up bookshelves in his buses containing the newest books of the day. As dishonest people stole so many books, however, the library had to be stopped. Poor Shillibeer was ruined as a bus-

HOW VISITORS FROM THE COUNTRY ARRIVED IN LONDON A HUNDRED YEARS AGO

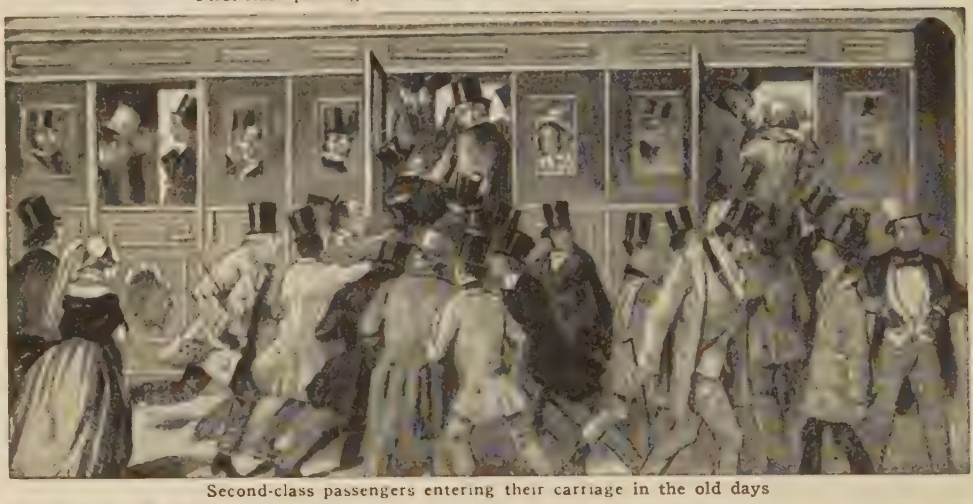
owner, partly through rivalry with the railways, and partly through unfair treatment by the Government, which taxed him without mercy. He afterwards started a business in funeral coaches, and so "shillibeer" became the name of the hearse. But for that, buses would probably have been called shillibeers to this day.

With many improvements, buses drawn by horses flourished until motor-buses were introduced. There were then nearly 4,000 horse buses in London, and to run these some 40,000 horses were kept.

London was very slow in adopting

HOW OUR GRANDFATHERS WENT BY TRAIN

First-class passengers in one of the old-time trains in England



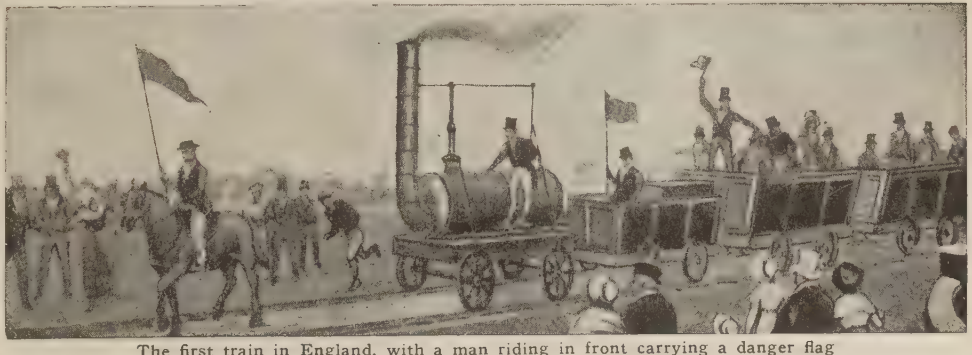
Second-class passengers entering their carriage in the old days

Third-class passengers travelling in open trucks in the first days of railway trains

THE FIRST BUS, FIRST CYCLE, & FIRST TRAIN

The first omnibus in London, built and run by Shillibeer, a famous coachbuilder, in 1829

The earliest kind of bicycle, in which the rider ran along the ground as he sat astride



The first train in England, with a man riding in front carrying a danger flag

the idea of running public vehicles on rails laid on the street. Though such cars drawn by horses had been started in New York in 1832, it was not until nearly thirty years later that an American, George Francis Train, introduced the plan into England. It met with so much opposition on the part of horse owners, that it failed. A little later horse cars were again introduced. Then came cars drawn by steam engines, until finally electric cars have become common.

THE LITTLE MULES THAT PULLED THE TRAMS

Wherever they were permitted to run, trams, as the English call street cars, were started, chiefly in the suburbs. They were poor things, not very comfortable, running on bad roads, drawn mostly by horses; though many can remember the time, twenty or thirty years ago, when London trams were drawn by mules — two big mules or three little ones to a tram. With their tinkling bells and their queer mincing trot, the mules always gave the London streets a foreign look. The mules, though they were very sure-footed and strong, gradually gave way before horses.

In the early days before the Revolution the people of the American colonies travelled chiefly in their own carriages, or on horseback, as the roads were so bad in many places, that no wheeled vehicle could be drawn over them. Often the woman, going to town, to church, or to visit a neighbour, rode on a horse behind her husband or her father.

A few coaches ran between the principal towns, which, we must remember, were little more than villages. Most of them were dirty and uncomfortable as well as very slow. The trip which we now easily make in an hour was then a day's journey, and sometimes required a part of the night as well. Very often the passengers had to get out to lighten the load when going up hill, and even had to push or tug at the wheels when the coach stuck in the mud.

Some of the best coaches, however, made excellent progress where the roads were good, and could be depended upon to arrive on the minute. Horses were frequently changed. When the coach drove up, fresh horses were waiting, the tired team was quickly unhitched, the fresh one was put in, and the passengers were again on their way in less time than is now required to change engines on a fast train. Nearly all of these stage lines, however, went out of business with the coming of the railroad, though in some parts of our country, not yet reached by the railroad, a few old-fashioned stage lines still continue in operation.

Some of them have been changed to automobile lines. Indeed the motor car has opened up some country in the West not yet touched by railroads, and into which horses could not be taken very well on account of scarcity of food for them. This is the so-called "arid region," where very little rain falls. In much of this region, however, the soil itself is excellent and needs only water to produce large crops. In some places great dams have been constructed across rivers flowing from mountains nearby, and the water is conducted to the dry region. Other streams will in the future be turned into the region, and the area of the desert will grow smaller.

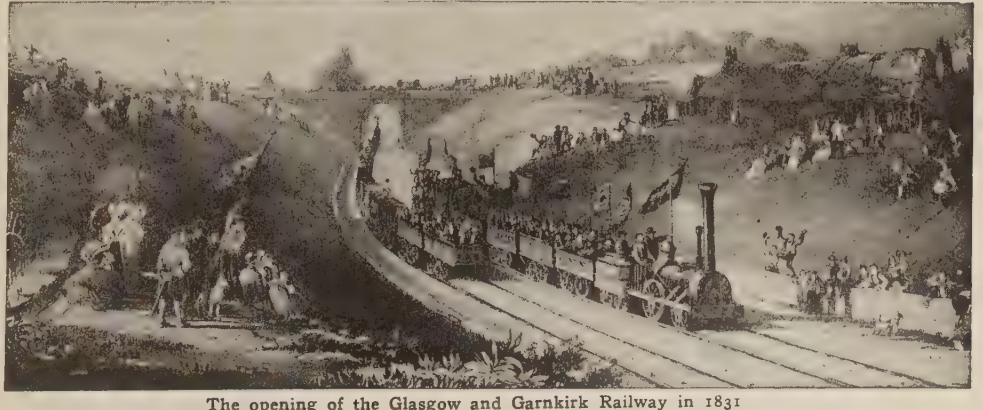
In the cities of the United States buses were common in the early days, and still run in a few towns where there is not enough business to pay for putting down rails. But this country has been ahead of any other in furnishing cheap methods of getting about. After the horse cars were introduced, the cable cars followed. These cars were drawn by a moving cable running underground between the tracks. A "grip" attached to the car would seize the cable when the gripman on the car moved a lever and the car would be drawn along. When the lever was moved another way, the grip let the cable loose and the car stopped.

The electric car, which was first successful in Richmond, Virginia, in 1888, has, however, succeeded all other means of cheap transportation. Electric cars run on the streets of every city in the United States and Canada. Many towns are joined by these electric

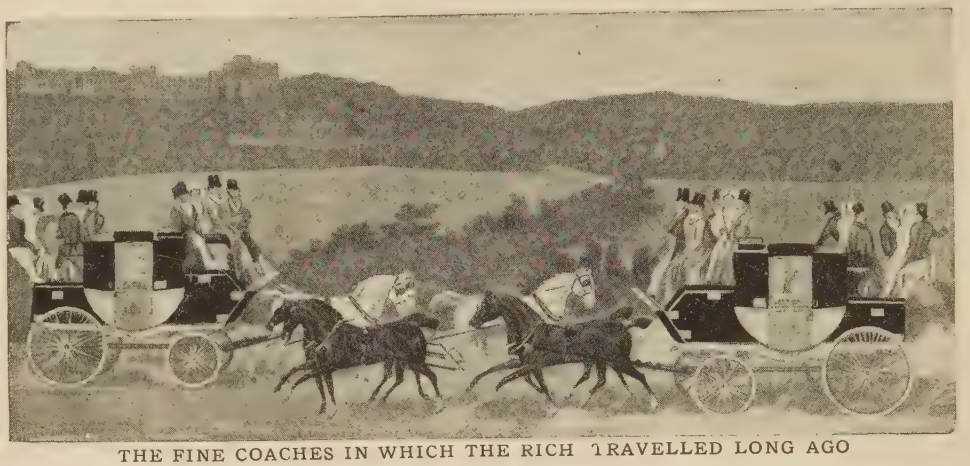
A RAILWAY STATION IN OLDEN TIMES

The Railway station at Liverpool in the early days of trains

King Louis Philippe of France entering a train at New Cross Station, London, in 1844



The opening of the Glasgow and Garnkirk Railway in 1831



THE FINE COACHES IN WHICH THE RICH TRAVELLED LONG AGO

railways and thus farmers can go to town whenever they wish.

Think what these changes have meant to city and country alike. They enable men to live at greater distance from their work, often in more healthful places. Without them our cities would be more crowded, and intercourse with our friends more difficult.

THE FIRST HANSOM CAB

One reason why so many boys have left the farm has been the loneliness. The country car line and the telephone have done much to remove the disadvantages of country life. When one can reach the neighbouring town in a few minutes, the members of the farmer's family can feel themselves to be a part of the great world. Every year many miles of rural trolley lines are built, and the mileage will continue to increase.

What the future will show in methods of transportation one can only guess. Perhaps the gyroscope car which runs on one rail, about which you are told in another place will become common. Perhaps trolley wires will be strung above the main roads, and vehicles fitted with motors may run along the road though no rails are laid. Perhaps we shall all use flying machines. Who knows?

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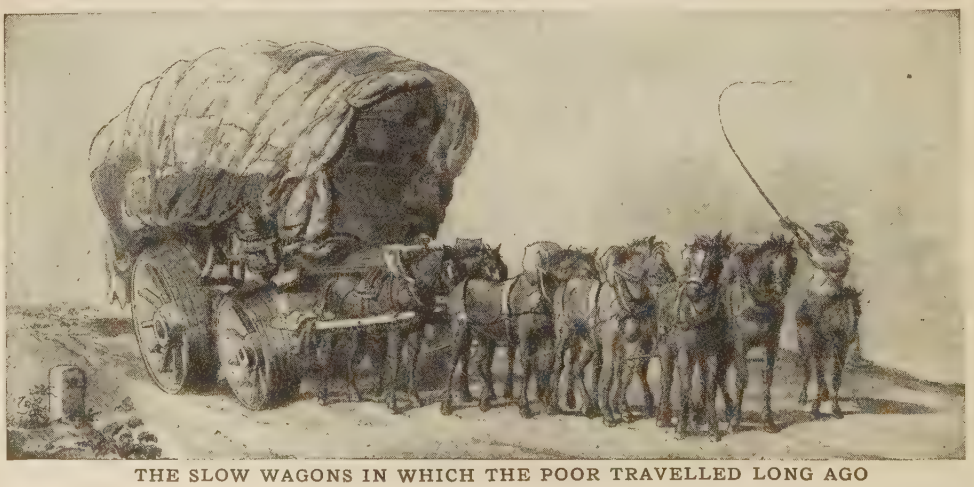

THE SLOW WAGONS IN WHICH THE POOR TRAVELLED LONG AGO

THIS story tells how the great Mississippi River, the longest river in the world, is born in a little lake in the hills of Minnesota, and flowing down through the heart of the American continent some 2,500 miles, empties at last into the Gulf of Mexico in the south. Many large towns and cities are built upon its banks, chief of which are St. Paul, Minneapolis, St. Louis, Cairo, Memphis, Helena, Vicksburg, Baton Rouge and New Orleans. The river flows through the richest bottom land in the United States, extending as it does over thousands of miles, where corn and wheat and cotton and sugar-cane and many other important crops are grown. The Mississippi River was first discovered by De Soto, and later explored by Joliet, Marquette, and La Salle, and was then in turn under the control of the Spanish and the French. The complete control of the river came to the United States with the Louisiana Purchase in 1803.

THE MISSISSIPPI

THE Mississippi River has been called the "main artery" of the United States. Like an artery in man's body it pulses through the very heart of the American continent, receiving its water supply from the many tributaries that run like giant veins into every part of our broad land. From the source of its chief tributary, the Missouri, to its mouth is 2,553 miles, making this great stream the longest river in the world.

But if you will take your atlas you will see the real source of the Mississippi River proper is not with the Missouri in the range of the Rocky Mountains, but among the hill land of Minnesota in a little pond called Lake Itasca. It is a pretty little lake encircled with green forests and often the tremulous laughter of the loon drifts over its quiet waters. In certain spots the water is broken by the lush, green grass of the rice that pushes its way up from the rich mud bottom. The stream that leaves the lake is little more than a creek, yet it is narrow, and deep, and swift and seems not an unworthy beginning of the mighty river it is to become.

As the river pushes on its way it becomes broader and more tranquil, but when it arrives at St. Paul and Minneapolis, the great manufacturing cities of the northwest, it is still a very moderate sized stream. At Minneapolis the river takes its first foaming leap over the falls of St. Anthony and for a little way the waters become a thunderous, roaring, impressive torrent.

Between the sturdy bulwarks of the Minnesota and Wisconsin bluffs the river makes its way. It is a lovable stream here, clear and swift and cool, unmuddied by the tearing of the banks on the broader river below. From the bluff lands the river passes through the monotonous flat prairies of southern Minnesota — the banks fringed with natural oak woods, poplars, maples and willows, with farmhouses hidden here and there among the trees. These houses are on the whole prosperous and picturesque, but there is much worn out machinery lying about, and the woodpiles and haystacks are often depleted.

In Iowa the beautiful farming country rolls away on either side, broken here and there along the way with fair-sized, comfortable looking towns. At Hannibal, Missouri, beside the growing river, we come to the country of Mark Twain. Here, great rugged bluffs rise along the water edge, and beyond the green, dotted pastures roll away to the hill country inland, where there are farmhouses, and churches and patches of forest trees. "The house the humourist lived in still stands and is much the same as it always was — a stumpy, two-story, clap-boarded dwelling." You can

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find also the "hill where Tom Sawyer and Huckleberry Finn used to dig for treasure with much enthusiasm, expecting to find a brass pot with a hundred dollars in it, or a rotten chest full of diamonds."

From here on, the current of the Mississippi is a thing to be reckoned with. "To the landowners of the river valley the waters seem a very demon of destruction eating away the banks and flooding the low-lying farmlands, sweeping all before its swift, silent current. In the flood season, landholders on the river never know but they may awake one morning to find their fair acres a swirl of thick brown waters. One traveller through the Mississippi valley says that a hotel proprietor told him there was a 'heap of pretty country under water along the river' and one day he made a trip to an outlying village to see how the people fared in the submerged districts. They took the flood philosophically enough. He found they were in no danger, simply inconvenienced. Some of the land and houses had not yet been touched, but the majority of the dwellings were quite Venetian and he hired a negro to row him about among them."

To prevent these devastating floods the people have built up levees all along the banks, great earth walls, to keep the giant river back within its natural bounds. Along these levees, roadways are built in some places and back of them pleasant homes, neat and cosey and clean, with vines and shrubbery and shade trees growing about them.

To one class of the Mississippi people however, the floods hold no terror, — the boat-dwellers, for them the river is a great everchanging highway, a bountiful fairy stream, full of change and fascination. From the logs afloat upon its surface they gather the wherewithal to build their homes. All the way from St. Paul to New Orleans thousands of the water gypsies can be found, in all sorts of houseboats, varying in size and material according to the means or whims of the owners. Some of them are no larger than an ordinary skiff with hooped-iron roofs covered with canvas, under which the people crawl for the night, while others are large, comfortable, and attractive. Sometimes they can be seen in flotillas of a score or more; at other times only two or three can be seen.

Cairo stands where the great Ohio River from the East joins the Mississippi and no end of steamers, scows, rafts, tugs, houseboats and skiffs float up and down. With such towns as this the river banks are studded. The air is filled with a sort of lazy hum of life and excitement. As the river passes into Tennessee wide expanses of corn and cotton fields stretch away from the waters. In some seasons of the year the fields are alive with negro workers, hoeing the corn and cotton or picking the white fluff balls out of their round bolls. In the autumn when the bolls open the cotton lands along the Mississippi look as if they were white with a fall of snow.

As the river flows lower and lower in its course, the volume of its broad waters grows greater and greater. It washes away hundreds of acres of plantation lowland every year, sucking the silt from its sides, and hurling it onward and downward toward the sea.

There is a river flowing,
  Fast flowing, toward the sea;
Past bluff and levee blowing
  His mantle glances free;
Past pine and corn and cotton-field
  His foamed-winged sandals flee.

From dock and dune and reed brake,
  Through lock and basin wide,
Long-hulsed lagoon and terraced place
  Flows down to watch his pride,
And rivers north and river south
  To speed his coursing ride.

Wheat and corn, and corn and wheat,
  Cotton drift and cane,
Serried lances rippling fleet,
  Dappled tides of grain,
Dip beside him where he goes,
  Flying to the main.

By rock and cavern blowing,
  Flocked field and pluming tree,
Past bluff and levee going,
  On foamed-winged footsteps free,
By rapid, lock and terraced lake,
  For ever to the sea.

As the great river flows lower and lower, the banks become farther and

TWO VIEWS OF THE MIGHTY MISSISSIPPI

Though the Mississippi is one of the longest rivers in the world, it is not one of the deepest. In many places it is so shallow that a special form of boat has been constructed with the paddle-wheel at the back protected from snags and floating logs and not extending deep into the water. Such a boat can go where the water is very shallow. Notice also the levees, here used as wharves.

The people of the Mississippi Valley are very much interested in the construction of a deeper channel, hoping that the commerce of the region may be increased thereby. In order to interest the national government a great excursion carried President Roosevelt and many other prominent men down the river, just before the end of his term of office. Here we see the procession of the boats. To-day the railroad along the river carries more traffic than the river.

farther apart until to people standing upon one bank the other seems but a hazy line of blue across the swift, turbid waters. In the fall, the broad stream is alive with river schooners piled high with blue molasses barrels and bales of cotton; seen in the hot sun against the clear sky the cotton-piled steamers seem like floating mountains of white snow. In the forecastle of the boats can be seen the throngs of negro workers, the handkerchiefs bound about their heads flaming gaudily against the snowy background of the cotton bales. As the boats push their way up and down the muddy stream, their great smoke-stacks puffing out clouds of white vapour, they stop now and again at some levee along the shore. Then the air is filled with a clamour of banging barrels and oaters, as the darkies under the direction of the foremen load and unload the cargoes. The bodies of the toiling negroes glisten as if they had been oiled. The boats move slowly along from landing to landing between monotonous naked walls of mud, rising sometimes as high as 15 feet above the upper decks. Always beneath them flows the swift, yellow stream, for ever gnawing away at its crumbling banks; always above them stretches the arching, semi-tropical sky; always on either side of the lower Mississippi stretch mile upon mile, the fringes of dreary, low-lying woodland, without a single sign of life to tell of the humanity dwelling beyond the reach of the vampire-like stream.

The last part of the journey is through a region almost tropical in appearance. The river twists along and from the upper deck of a boat paddling down stream one may see the variegated water-birds in the swamps behind the levees, and tall cypress trees festooned with Spanish moss waving in the breeze and rising out of a real jungle of undergrowth.

As the river nears New Orleans, houses suggestive of thrift and prosperity spring up along the shore, and pretty white villages nestle among the tall trees. Here and there can be seen white-washed beams and sheds, negro cabins and hen coops, with broad sugar and rice fields rolling away behind them. Below this comes the delta country, and everywhere lie muddy ponds, sluggish streams and water-soaked marshes, their long, dappled grasses waving in the wind, where the alligators lie basking in the sun. At last the great river curves around the high-built levees and wharves of New Orleans, the Crescent City. The air is clear, the sunshine burning hot. The giant stream flows a silent, brimming torrent along the miles of wharves that line the water's edge. It is alive with river vessels, barges, tug boats and great ocean liners from all parts of the known world.

Like New York City, New Orleans is one of the great commercial gateways of our continent. Even the river itself seems dwarfed by the monster steamers that plough its "dun waters." Old, bulky ferry boats, huge river dredges, and fruit vessels from the West Indies, Mexico and South America make their way to and fro; and in and out among them all push the slim, white Mississippi packets, looking like giant swans upon the turbid waters. "Some classes of goods go at once into the warehouses, trains, or vessels, but others are stacked for a longer or shorter time on the wharves. There are vast quantities of great, clumsy cotton bales, rows of oozy molasses barrels, heaps of raw sugar in coarse brown bags, piles of lumber, great, odorous hogsheads of tobacco, and boxes and crates and bales of a thousand shapes and a thousand variations of contents. But cotton is more important than anything else, for New Orleans is the greatest cotton port in the world, and the storing, selling, and handling this product furnishes a livelihood to the majority of the city's three hundred thousand inhabitants."

But the river sweeps on, without heeding the great traffic of the Crescent City, and empties its silt-laden waters into the Gulf of Mexico lying placid and deeply blue against the southern sky. The "Great River" builds its mouth out far into the open Gulf, dropping the silt it has carried as it meets the salt water of the sea.

A COURT LADY

"A Court Lady" was written by Elizabeth Barrett Browning. Both Mrs. Browning and her famous husband were deeply interested in the struggle for a united Italy and both wrote many poems dealing with this subject. The Brownings lived in Italy for many years, and learned to love it as dearly as they did their own native land of England. Among Mrs. Browning's other well-known poems dealing with Italy is "Mother and Poet."

Her hair was tawny with gold, her eyes with purple were dark,
Her cheeks' pale opal burnt with a red and restless spark.

Never was lady of Milan nobler in name and in race
Never was lady of Italy fairer to see in the face.

Never was lady on earth more true as woman and wife,
Larger in judgment and instinct, prouder in manners and life.

She stood in the early morning, and said to her maidens, "Bring
That silken robe made ready to wear at the court of the king.

"Bring me the clasp of diamonds, lucid, clear of the mote,
Clasp me the large at the waist, and clasp me the small at the throat.

"Diamonds to fasten the hair, and diamonds to fasten the sleeves,
Laces to drop from their rays, like a powder of snow from the eaves."

Gorgeous she enter'd the sunlight which gather'd her up in a flame,
While, straight in her open carriage, she to the hospital came.

In she went at the door, and gazing from end to end
"Many and low are the pallets, but each is the place of a friend."

Up she pass'd through the wards, and stood at a young man's bed:
Bloody the band on his brow, and livid the droop of his head.

"Art thou a Lombard, my brother? Happy art thou," she cried,
And smiled like Italy on him: he dream'd in her face and died.

Pale was his passing soul, she went on still to a second:
He was a grave hard man, whose years by dungeons were reckon'd.

Wounds in his body were sore, wounds in his life were sorer.
"Art thou a Romagnole?" Her eyes drove lightnings before her.

"Austrian and priest had join'd to double and tighten the cord
Able to bind thee, O strong one, — free by the stroke of a sword.

"Now be grave for the rest of us, using the life overcast
To ripen our wine of the present, (too new,) in glooms of the past."

Down she stepp'd to a pallet where lay a face like a girl's,
Young, and pathetic with dying, — a deep black hole in the curls.

"Art thou from Tuscany, brother? and seest thou, dreaming in pain,
Thy mother stand in the piazza, searching the list of the slain?"

Kind as a mother herself, she touch'd his cheeks with her hands:
"Blessed is she who has borne thee, although she should weep as she stands."

On she pass'd to a Frenchman, his arm carried off by a ball:
Kneeling . . . "O more than my brother! how shall I thank thee for all?

"Each of the heroes around us, has fought for his land and line,
But *thou* hast fought for a stranger, in hate of a wrong not thine.

"Happy are all free peoples, too strong to be dispossessed:
But blessed are those among nations, who dare to be strong for the rest!"

Ever she pass'd on her way, and came to a couch where pin'd
One with a face from Venetia, white with a hope out of mind.

Long she stood and gaz'd, and twice she tried at the name,
But two great crystal tears were all that falter'd came.

Only a tear for Venice? she turn'd as in passion and loss,
And stoop'd to his forehead and kiss'd it, as if she were kissing the cross.

Faint with that strain of heart she mov'd on then to another,
Stern and strong in his death. "And dost thou suffer, my brother?"

Holding his hand in hers: — "Out of the Piedmont lion
Cometh the sweetness of freedom! sweetest to live or to die on."

Holding his cold rough hands, — "Well, oh, well have ye done
In noble, noble Piedmont, who would not be noble alone."

Back he fell while she spoke. She rose to her feet with a spring, —
"That was a Piedmontese! and this is the Court of the King."

THE LOST LEADER

JUST for a handful of silver he left us,
Just for a ribbon to stick on his coat —
Found the one gift of which fortune bereft us,
Lost all the others she lets us devote;
They, with the gold to give, dol'd him out silver,
So much was theirs who so little allow'd;
How all our copper had gone for his service!
Rags — were they purple, his heart had been proud;
We that had lov'd him so, follow'd him, honour'd him,
Liv'd in his mild and magnificent eye,
Learn'd his great language, caught his clear accents,
Made him our pattern to live and to die!
Shakespeare was of us, Milton was for us,
Burns, Shelley, were with us, — they watch from their graves!
He alone breaks from the van and the freeman,
He alone sinks to the rear and the slaves!

We shall march prospering, — not thro' his presence;
Songs may inspirit us, — not from his lyre;
Deeds will be done, — while he boasts his quiescence,
Still bidding crouch whom the rest bade aspire.
Blot out his name, then, record one lost soul more,
One task more declin'd, one more footpath untrod,
One more devil's-triumph and sorrow for angels,
One wrong more to man, one more insult to God!
Life's night begins: let him never come back to us!
There would be doubt, hesitation, and pain,
Forced praise on our part — the glimmer of twilight,
Never glad confident morning again!
Best fight on well, for we taught him — strike gallantly,
Menace our heart, ere we master his own;
Then let him receive the new knowledge and wait us,
Pardon'd in heaven, the first by the throne!

— ROBERT BROWNING.

ALAS! HOW LIGHT A CAUSE MAY MOVE

ALAS! how light a cause may move
Dissension between hearts that love!
Hearts that the world in vain had tried;
And sorrow but more closely tied;
That stood the storm when waves were rough,
Yet in a sunny hour fall off,
Like ships that have gone down at sea,
When heaven was all tranquillity!
A something light as air, — a look,
A word unkind or wrongly taken, —
Oh! love that tempests never shook,
A breath, a touch like this hath shaken!
And ruder words will soon rush in
To spread the breach that words begin;
And eyes forget the gentle ray
They wore in courtship's smiling day;
And voices lose their tone that shed
A tenderness round all they said;
Till fast declining, one by one,
The sweetnesses of love are gone,
And hearts, so lately mingled, seem
Like broken clouds, — or like the stream
That smiling left the mountain's brow,
As though its waters ne'er could sever,
Yet, ere it reach the plain below,
Breaks into floods that part for ever.

O you, that have charge of Love,
Keep him in rosy bondage bound,
As in the fields of bliss above
He sits, with flowerets fettered round; —
Loose not a tie that round him clings,
Nor ever let him loose his wings;
For even an hour, a minute's flight
Will rob the plumes of half their light.
Like that celestial bird, — whose nest
Is found beneath far eastern skies, —
Whose wings, though radiant when at rest, —
Lose all their glory when he flies!

— THOMAS MOORE.

LOVE, DEATH, AND REPUTATION

This little fable in rhyme appears in a collection of Charles and Mary Lamb's verses for children. It is probably by Charles Lamb, and is a poetic translation of a fable told in an old play of Queen Elizabeth's time. Its lesson is one of the most important we can learn—never to lose our good reputation.

ONCE on a time, Love, Death, and Reputation,
Three travellers, a tour together went;
And, after many a long perambulation,
Agreed to part by mutual consent.

Death said: "My fellow tourists, I am going
To seek for harvests in th' embattled plain;
Where drums are beating, and loud trumpets blowing,
There you'll be sure to meet with me again."

Love said: "My friends, I mean to spend my leisure
With some young couple, fresh in Hymen's bands:
Or 'mongst relations who, in equal measure,
Have had bequeathed to them house or lands."

But Reputation said: "If once we sever,
Our chance of future meeting is but vain:
Who parts from me must look to part for ever,
For *Reputation lost comes not again.*"

SONNET

THIS world is too much with us: late and soon,
Getting and spending, we lay waste our powers;
Little we see of nature that is ours;
We have given our hearts away, — a sordid boon!
This sea that bares her bosom to the moon, —
The winds that will be howling at all hours,
And are upgathered now like sleeping flowers, —
For this, for everything, we are out of tune;
It moves us not. Great God! I'd rather be
A Pagan, suckled in a creed outworn:
So might I, standing on this pleasant lea,
Have glimpses that would make me less forlorn;
Have sight of Proteus rising from the sea,
Or hear old Triton blow his wreathed horn.

— WM. WORDSWORTH.

MEMORIES

OFT I remember those whom I have known
In other days, to whom my heart was led
As by a magnet, and who are not dead,
But absent, and their memories overgrown
With other thoughts and troubles of my own,
As graves with grasses are, and at their head
The stone with moss and lichens so o'erspread,
Nothing is legible but the name alone.
And is it so with them? After long years,
Do they remember me in the same way,
And is memory pleasant as to me?
I fear to ask; yet wherefore are my fears?
Pleasures, like flowers, may wither and decay,
And yet the root perennial may be.

— HENRY WADSWORTH LONGFELLOW.

TO THOMAS MOORE

MY boat is on the shore,
And my bark is on the sea;
But, before I go, Tom Moore,
Here's a double health to thee!

Here's a sigh to those who love me,
And a smile to those who hate;
And, whatever sky's above me,
Here's a heart for every fate.

Though the ocean roar around me,
Yet it still shall bear me on:
Though a desert should surround me,
It hath springs that may be won.

Were't the last drop in the well,
As I gasped upon the brink,
Ere my fainting spirit fell,
'Tis to thee that I would drink.

With that water, as this wine,
The libation I would pour
Should be — Peace with thine and mine,
And a health to thee, Tom Moore.

— LORD BYRON.

SELECTIONS FROM "IN MEMORIAM"

THE path by which we twain did go,
Which led by tracts that pleased us well,
Thro' four sweet years arose and fell,
From flower to flower, from snow to snow:

And we with singing cheer'd the way,
And, crown'd with all the season lent,
From April on to April went,
And glad at heart from May to May.

When each by turn was guide to each,
And Fancy light from Fancy caught,
And Thought leapt out to wed with Thought
Ere Thought could wed itself with Speech.

LOVE SERVICEABLE

HE does not rightly love himself
Who does not love another more.

— COVENTRY PATMORE.

ON HIS BLINDNESS

When I consider how my light is spent,
Ere half my days in this dark world and wide,
And that one talent, which is death to hide,
Lodged with me useless, though my soul more bent
To serve therewith my Maker, and present
My true account, lest He returning chide;
"Doth God exact day-labour, light denied?"
I fondly ask; but Patience, to prevent
That murmur, soon replied: "God doth not need
Either man's work or His own gifts; who best
Bear His mild yoke, they serve Him best; His state
Is kingly; thousands at His bidding speed,
And post o'er land and ocean without rest;
They also serve who only stand and wait."

— Milton.

THE RECONCILIATION

This beautiful little poem is one of the many lovely songs that occur in "The Princess," written by Alfred, Lord Tennyson.

As through the land at eve we went,
And plucked the ripened ears,
We fell out, my wife and I,—
Oh, we fell out, I know not why,
And kissed again with tears.

For when we came where lies the child
We lost in other years,
There above the little grave,
Oh, there above the little grave,
We kissed again with tears.

OLD FRIENDS

We just shake hands at meeting
With many that come nigh,
We nod the head in greeting
To many that go by.
But we welcome through the gateway
Our few old friends and true;
Then hearts leap up and straightway
There's open house for you,
Old friends,
Wide-open house for you.

The surface will be sparkling,
Let but a sunbeam shine,
But in the deep lies darkling
The true life of the wine.
The froth is for the many,
The wine is for the few;
Unseen, untouched of any,
We keep the best for you,
Old friends,
The very best for you.

"The many" cannot know us,
They only pace the strand
Where at our worst we show us,
The waters thick with sand;
But out beyond the leaping
Dim surge "'tis clear and blue,"
And there, old friends, we're keeping
A waiting calm for you,
Old friends,
A sacred calm for you.

BELIEVE ME, IF ALL THOSE ENDEARING YOUNG CHARMS

Believe me, if all those endearing young charms
Which I gaze on so fondly to-day,
Were to change by to-morrow, and fleet in my arms,
Like fairy-gifts fading away,
Thou would'st still be ador'd, as this moment thou art,
Let thy loveliness fade as it will,
And around the dear ruin each wish of my heart
Would entwine itself verdantly still.

It is not while beauty and youth are thine own,
And thy cheeks unprofan'd by a tear,
That the fervour and faith of a soul can be known,
To which time will but make thee more dear;
No, the heart that has truly lov'd never forgets,
But as truly loves on to the close,
As the sun-flower turns on her god, when he sets,
The same look which she turn'd when he rose.

— Thomas Moore.

LIGHT

The night has a thousand eyes
And the day but one,
Yet the light of the bright world dies
With the dying sun.

The mind has a thousand eyes,
And the heart but one;
Yet the light of a whole life dies
When love is done.

— Francis William Bourdillon.

FROM "IN MEMORIAM"

Our little systems have their day;
They have their day and cease to be:
They are but broken lights of Thee,
And Thou, O Lord, art more than they.

Forgive my grief for one removed,
Thy creature, whom I found so fair,
I trust he lives in Thee, and there
I find him worthier to be loved.

I sometimes hold it half a sin
To put in words the grief I feel;
For words, like Nature, half reveal
And half conceal the soul within.

— Alfred Tennyson.

The Old Woman and Her Pig

AN old woman was sweeping her house, and she found a little crooked sixpence. "What," she said, "shall I do with this little sixpence? I shall go to market and buy a little pig." As she was coming home she came to a stile. The piggy would not go over the stile. She went a little farther, and she met a dog, so she said to the dog:

"Dog, dog, bite pig,
Piggy won't get over the stile,
And I sha'n't get home to-night!"

But the dog would not.

SHE went a little farther, and she met a stick. So she said:

"Stick, stick, beat dog;
Dog won't bite pig,
Piggy won't get over the stile,
And I sha'n't get home to-night!"

But the stick would not.

SHE went a little farther, and she met a fire. So she said:

"Fire, fire, burn stick;
Stick won't beat dog;
Dog won't bite pig;
Piggy won't get over the stile,
And I sha'n't get home to-night!"

But the fire would not.

SHE went a little farther, and she met some water. So she said:

"Water, water, quench fire;
Fire won't burn stick;
Stick won't beat dog;
Dog won't bite pig;
Piggy won't get over the stile,
And I sha'n't get home to-night!"

But the water would not.

SHE went a little farther, and she met an ox. So she said:

"Ox, ox, drink water;
Water won't quench fire;
Fire won't burn stick;
Stick won't beat dog;
Dog won't bite pig;
Piggy won't get over the stile,
And I sha'n't get home to-night!"

But the ox would not.

SHE went a little farther, and she met a butcher. So she said:

"Butcher, butcher, kill ox;
Ox won't drink water;
Water won't quench fire;
Fire won't burn stick;
Stick won't beat dog;
Dog won't bite pig;
Piggy won't get over the stile,
And I sha'n't get home to-night!"

But the butcher would not.

SHE went a little farther, and met a rope. So she said:

"Rope, rope, hang butcher;
Butcher won't kill ox;
Ox won't drink water;
Water won't quench fire;
Fire won't burn stick;
Stick won't beat dog;
Dog won't bite pig;
Piggy won't get over the stile,
And I sha'n't get home to-night!"

But the rope would not.

She went a little farther, and she met a rat. So she said:

"Rat, rat, gnaw rope;
Rope won't hang butcher;
Butcher won't kill ox;
Ox won't drink water;
Water won't quench fire;
Fire won't burn stick;
Stick won't beat dog;
Dog won't bite pig;
Piggy won't get over the stile,
And I sha'n't get home to-night!"

But the rat would not.

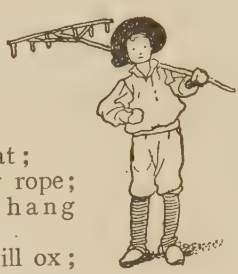
She went a little farther, and she met a cat, so she said:

"Cat, cat, kill rat;
Rat won't gnaw rope;
Rope won't hang butcher;
Butcher won't kill ox;
Ox won't drink water;
Water won't quench fire;
Fire won't burn stick;
Stick won't beat dog;
Dog won't bite pig;
Piggy won't get over the stile,
And I sha'n't get home to-night!"

But the cat said to her, "If you will go to yonder cow, and fetch me a saucer of milk, I will kill the rat." So away went the old woman to the cow, and said:

"Cow, cow, give me a saucer of milk;
Cat won't kill rat;
Rat won't gnaw rope;
Rope won't hang butcher;
Butcher won't kill ox;
Ox won't drink water;
Water won't quench fire;
Fire won't burn stick;
Stick won't beat dog;
Dog won't bite pig;
Piggy won't get over the stile,
And I sha'n't get home to-night!"

But the cow said to her, "If you will go to yonder haymakers, and fetch me a wisp of hay, I'll give you the milk." So away went the old woman to the haymakers, and said:



"Haymakers, give me a wisp of hay;
Cow won't give milk;
Cat won't kill rat;
Rat won't gnaw rope;
Rope won't hang butcher;
Butcher won't kill ox;
Ox won't drink water;
Water won't quench fire;
Fire won't burn stick;
Stick won't beat dog;
Dog won't bite pig;
Piggy won't get over the stile,
And I sha'n't get home to-night!"

But the haymakers said to her, "If you will go to yonder stream, and fetch us a bucket of water, we'll give you the hay." So away the old woman went. But when she got to the stream, she found the bucket was full of holes.

So she covered the bottom with pebbles and then filled the bucket with water, and she went back with it to the haymakers, and they gave her a wisp of hay. As soon as the cow had eaten the hay, she gave the old woman the milk; and away she went with it in a saucer to the cat. As soon as the cat had lapped up the milk:

The cat began to kill the rat;
The rat began to gnaw the rope;
The rope began to hang the butcher;
The butcher began to kill the ox;
The ox began to drink the water;
The water began to quench the fire;
The fire began to burn the stick;
The stick began to beat the dog;
The dog began to bite the pig;
The little pig in a fright jumped over the stile;

So the old woman got home that night!

Chippendale the carpenter at work, making one of the tables which have made his name famous

CONTINUED FROM PAGE 6027.

MAKERS OF BEAUTIFUL THINGS

THREE WORKMEN WHOSE WORK LIVES AFTER THEM

We have all heard people say of some piece of furniture, "That is real Chippendale!" It is only children, the great questioners of the world, who dare say, "What do you mean by real Chippendale?" They are answered, "It means that this furniture was made by Chippendale;" or "It is furniture made in what is known as the Chippendale period." But if a child goes on to ask, "Who was Chippendale, and what was the Chippendale period?" he may cause his elders some little difficulty.

Very often when we speak of an article of furniture which we believe to have been made in the eighteenth century, we call it "Chippendale," believing it to belong to the so-called Chippendale period. But we are in error in doing so, for the real Chippendale period was the time of Chippendale's life and work, and only professional dealers in old furniture, or those who make furniture their special hobby, can tell when we are right in so describing our treasures.

There is a good story about Homer. A puzzle-headed scholar, who had been studying long and hard to find out whether the great poet really wrote the work which made him immortal, put it in this way: "Well, you see, the poem was not really written by Homer, but by another chap of the same name!" Chippendale, who gets credit for work he never did, is to the collector of beautiful furniture very much what Homer is to the lover of literature. He looms out of the past as a great name, doing splendid work himself, and becoming, as it were, the father of most of the good work of the same sort which followed.

Furniture is not all of life, but it plays an important part in our home education. To live all our days among ugly furniture has a lowering tendency upon the mind. It debases our taste. We get accustomed to the sight of ugly, inartistic things, and do not appreciate better.

This spirit of ignorance and indifference prevailed with regard to the entire home until the great artist, William Morris, set to work to reform taste, and make the home beautiful. Chippendale was an earlier Morris, in a smaller way, and his work was a miracle. Why should one little, unknown man declare that all the furniture being made, whether

for the rich or the poor, was bad, common, trashy? What would happen to a little tailor, or some poor dressmaker, who tried to do the same thing to-day in regard to clothes? Chippendale had an artistic soul within his carpenter's body, and he must have had enormous courage.

Furniture for English homes had undergone many changes before the day of Chippendale and his school. The Saxon style was barbarous and rough; the Norman was elaborate and heavy; various Continental styles were blended into one for another fashion, with the result that all the original grace and beauty were lost, and only bad, jumbled copies remained. Chippendale found English furniture of this sort, and he set himself to reform the public taste. We know nothing about his private career, not even the dates of his birth and death. All we know about him personally is that he was a native of Worcestershire, and that he came to London some time before 1750, and set up in business as a cabinet-maker and upholsterer in St. Martin's Lane. He began to make furniture in a new way. He did away with the stuffy upholstering for chairs, and made them with open backs; strong but handsome, for use as well as for ornament.

THE CORNER OF AN ADAM ROOM

Chippendale set his face against the ugly furniture with which the houses of the rich were packed. He carved chairs which could be sat upon; tables which could be used with comfort; sideboards which were really useful as well as beautiful.

And Chippendale's furniture was a tremendous success. It is wonderful that so great a change should have been welcomed in England as it was. If a king or some leader of fashion had ordered furniture of this type, it would have been easier to understand its success; but here was a quite unknown man, forsaking all the old fashions, and creating a style for himself, delicate, carefully carved, and sometimes very elaborate.

Chippendale seems to have made a great success in trade, but he was not satisfied with that. He was not content to know that the houses into which his

furniture went were beautiful. This carpenter, with an artist's mind, set out on a mission to convert other carpenters and their patrons. In 1752 he wrote a book on his trade. It taught carpenters how to make beautiful furniture, and it taught others to respect and admire such work. Many of Chippendale's designs were included in the book. Five years afterwards a second edition of the book was published, and three years after that a third appeared. In this third edition, however, he unfortunately allowed drawings and designs by other people to appear, and his high reputation suffered from these. Probably it suffered a good deal more from a book of forgeries published after his death. In spite of this, however, Chippendale had an enormous influence for good. A great number of his books were sold and studied, and they helped to change the whole art and style of furniture-making.

We may have heard of an "Adam house," or of an "Adam fireplace," or "Adam furniture." Those of us who have troubled our minds in the matter know that Robert Adam was an architect, not a furniture-maker. None the less, Robert Adam was one of the great figures in the movement for the reform of the English home. He was the son of a successful architect, and was born in Scotland in 1728. He studied at Edinburgh University and in Italy, and he had three brothers almost as gifted as himself. These were the men who built that part of London which, lying between the Strand and the Thames, was called the Adelphi. They built some of the finest houses in London, and many in the rest of the country.

The point in Robert Adam's career is his skill in making beautiful the inside of houses. It did not satisfy the brothers merely to build a house handsome from the outside. They designed all sorts of beautiful tables and chairs, sideboards, fireplaces, book-cases, brackets, candelabra, pedestals, clock-cases, mirror frames, and so on. They designed plate and carriages; they even designed a Sedan chair for Queen Charlotte. They refined every branch

THE CORNER OF A SHERATON ROOM

of domestic art that they touched, and as they were among the first architects to make fine large windows to admit light and air, we, who know the value of sunshine and pure air, should feel especially grateful to them.

With such a lead as Chippendale and the Adam brothers had given the country, it is hard to understand why afterwards there were so many shoddy homes in England, for the good work spread far and wide, and many artists in furniture now appeared. There were Hepplewhite, Ince, and Mayhew, among others, but only the furniture expert can be expected to know anything about them. One other, however, is interesting to us all.

This was Thomas Sheraton, who was born at Stockton-on-Tees in 1751, and died in London in 1806. He first came into prominence in his native town by a book on religion. In his first book he described himself as a mechanic, though he was really a carpenter and furniture-maker. The strange thing is that, as a furniture-maker, he was not successful. He had splendid ideas, but could not carry them out. He could design and teach others, but his proper work was

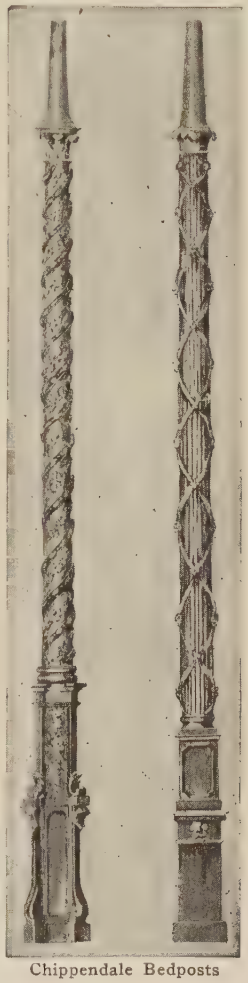
A CORNER OF A CHIPPENDALE ROOM

not the actual *making* of the furniture which has made his name famous. He gave up furniture-making, and at thirty-nine removed to London, where he at once started to publish works on furniture-making. He had studied Chippendale, and declared that, while that excellent man's designs were admirable for the time in which he lived, they were now out of date. He little dreamed what later generations would think of Chippendale furniture.

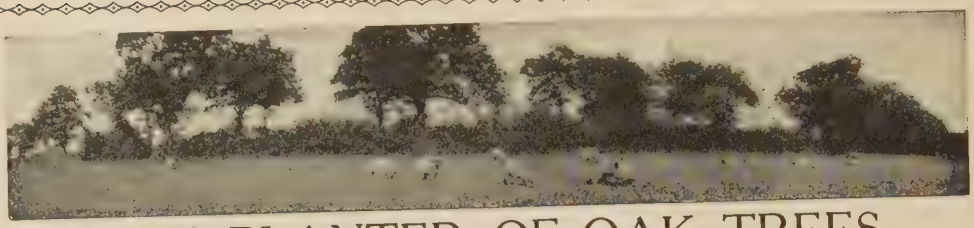
A Sheraton Clock

Sheraton was wrong in his judgment as to Chippendale, but he was right in his judgment as to how furniture should be made in his own day. He was one of those wonderful men who do great things without education. He had art in him, but he taught himself drawing and geometry, and, thus equipped, he set out to teach the world by means of books that he published. He cried out for still greater simplicity of design, a more severe beauty than Chippendale's, and a style far removed, of course, from that which Chippendale's had overthrown. In furniture, he said, we must have usefulness, not attempts at beauty alone; if the lines that we follow are sound, beauty is bound to result. It is harder, he declared, to reach successful simplicity than the highest development of the fanciful French style which was then in fashion. All artists agree that he was right, and to-day Sheraton furniture is very highly prized — that is, furniture made from Sheraton's designs. The pity is that Sheraton's books were never a success from the money point of view. He died in poverty, yet a good suite of his furniture to-day would sell for enough money to have kept him in plenty all his life.

These men were the chief of those who first strove in England to make the home beautiful. They laid good foundation, upon which careful technical artists have built ever since. Why, then, the return to shoddy, ugly furniture? Perhaps it was through the introduction of machinery. Population increased, and huge supplies of furniture were needed. In the factory, where machines did the work which careful craftsmen once did by hand, it was impossible to get the same artistic, loving attention to work. The older men had only a few persons in their employ, and could oversee every bit of work done. There was no hurry, no rushing. The factory with its machinery altered that, and the work suffered. But a revival of interest in the art of good furniture-making set in, and, if they choose to exercise care, the young couple, when furnishing for their marriage, can have household goods to-day modelled on the old classical lines of Chippendale, Adam, and Sheraton.



Chippendale Bedposts



THE PLANTER OF OAK TREES

To serve his country, to love his family, to look with affectionate interest after the welfare of his servants, and to plant oak trees — these were the chief aims in life of Lord Collingwood, the great admiral, who, with Nelson, helped to save England from her enemies by winning the battle of Trafalgar.

It is delightful to take a peep at the private life of heroes, and in Collingwood's case the result is specially gratifying, for his nature was very lovable.

History too often gives us a picture of our heroes which leaves the impression on the mind that these were not men, but some sort of machine existing only to make successful war, and to save the country. We must, therefore, leave the history book if we would find the real man who wore the hero's clothes and achieved the hero's telling deeds.

LORD COLLINGWOOD'S FAVOURITE WALK
He always called this his quarter-deck

We find Collingwood a most delightful character in real life, running about his little estate, when he could get to it, with a pocketful of acorns, planting them so that at some future date England might have oak trees with which to build her battleships. How he did love that home up in Northumberland, the home which he so seldom saw! England had need of him at sea, but his heart was in the happy abode in which his wife and two little daughters dwelt.

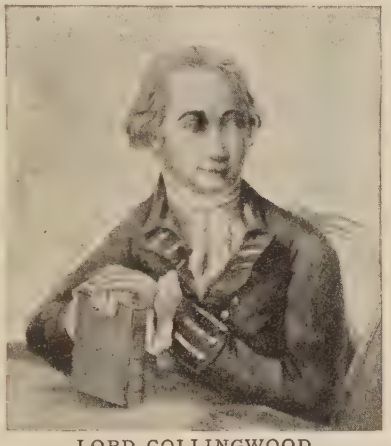
He was born at Newcastle-on-Tyne, in 1750, a member of a family which had been reduced almost to poverty by the wars in the seventeenth century, and by the attempts to restore the House of Stuart to the throne in the eighteenth century. Little Cuthbert Collingwood was sent to sea when only eleven years of age, and was early brought in contact with Nelson, with whom he was associated until death broke their friendship. Collingwood took the places which Nelson's promotions left vacant, and once he and Nelson were brought almost to death together by fever, which carried off 180 out of a crew of 200. After that Collingwood was wrecked, and was left starving for ten days on a barren island.

Collingwood did not go home until he was thirty-six years of age, and he had then, as he said, to make the acquaintance of his family, to whom he was practically a stranger. After another long cruise, he returned again to North-

umberland, and married a charming lady. They took a house at Morpeth, which still stands, and to this day is called Collingwood House.

Oaks at Hethpool, planted by Lord Collingwood

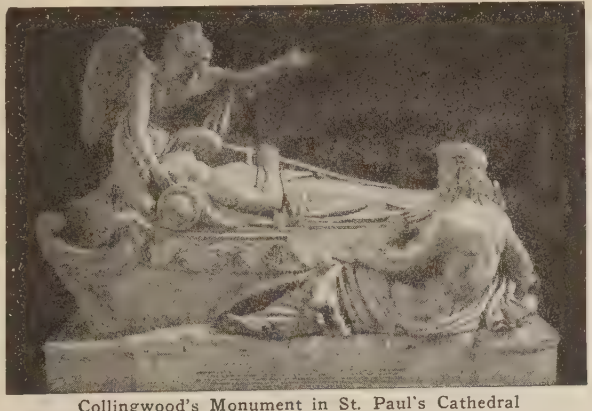
It was there that the daring sailor spent his happiest days, with his pockets full of acorns, planting in his garden and in the surrounding country what he hoped would come to be a supply of sturdy oak for his country's ships. "If the country gentlemen do not make a point to grow oaks," he said, "the time will not be very far distant when, to keep our Navy, we must depend entirely upon ships captured from the enemy." He little dreamed that the days of oak ships were coming to an end.



LORD COLLINGWOOD
From a portrait painted by himself

Collingwood had only two or three years at home, and then he was off to sea again, and had a great share in the splendid victory at the battle of Cape St. Vincent. Collingwood was offered a gold medal by the Government for this, but, as he had not received one for a previous battle, he refused this, saying that by accepting it he would admit the justice of his being refused one earlier. The Government, therefore, gave him two, declaring that the earlier one would have been presented to him had he been on shore to receive it. Collingwood kept at sea, but the greatest event in which he shared was, of course, the battle of Trafalgar. Here he was second in command to Nelson, and led the British column which first broke in upon the French and Spanish fleets.

It is sometimes made to appear that Collingwood was first to attack because of his own superior speed in reaching the enemy. That is not so; he did exactly as he was told by his mighty commander. Collingwood was always at his best when Nelson's superior mind was present to guide and inspire him. Nothing was too great for the Northumbrian to attempt if only Nelson wished it. To the credit of Nelson, it is to be said he did not mind the chance of Collingwood receiving credit for a part in the battle to which he was not really entitled.



Collingwood's Monument in St. Paul's Cathedral

In the letter which he sent off to his friend before the battle, Nelson wrote: "We can, my dear Coll., have no little jealousies." Collingwood led gloriously, and when Nelson fell, in the hour of victory, the supreme command of the fleet fell to Collingwood, and it was he who had to write home the report of the fight, and to tell the nation that she had won her greatest battle and lost her greatest sea warrior in Nelson. Collingwood

was at once raised to the peerage as Baron Collingwood. He was granted a pension of £2,000 a year for life, while suitable sums were awarded to his wife and two daughters. Even that left him comparatively poor. His high rank brought him much anxiety. "How we are to make out with high rank and no fortune, I know not," he wrote home to his wife. For so complete had been the victory that there were no more ships of the enemy worth mentioning that he could capture; hence he could not increase his income in the form of prize money.

He was now the leading admiral, and had to remain constantly at sea. He slaved all day at his desk on board ship, never going on shore, and getting very little fresh food. The result was that he became very ill, and he could not eat.

In these days, as in all others, he thought of his beloved home in Northumberland, and of the dear ones there. His letters to his wife were charming at this time. He remembered his old schoolmaster, and, when that worthy man died, sent home £20 for the monument of his old friend. He thought, too, of his oaks and of those who were looking after them.

There was a favourite old servant of his, named Scott, and he often mentioned the good fellow in his letters. "Be kind to old Scott," he said in one of them, "and when you see him weeding my oaks, give the old man a shilling." He thought of the old man, too, in the tiresome days when his ship was cruising off a French port in the hope that a vessel of the enemy might come out.

And as he thought of the work of old Scott, he remembered that that careful servant used to pick out and throw away all the bad potatoes which he found in the stock saved up for the family. That made the admiral wish that he had Scott with him to provide vegetables for him and his crew, for it was the lack of vegetables from which they chiefly suffered during their long time on board ship. Even the potatoes which old Scott threw away would be welcome, he said.

Collingwood and his great-great-great-grandchildren
This picture is from a copyright photograph

Eighteen months before his death Collingwood had the permission of the Admiralty to go home and rest on shore by filling a post on land. But the devoted man felt that his place was on the sea. So he stayed at his task, though his doctor saw that he was daily injuring his health. At last he was driven to quit his post, and set out for England. But it was too late.

He died on the voyage home, in March, 1810. The good old planter of oaks came home in one of the oak ships that he loved, but that ship was his coffin. He was given a magnificent funeral, and his body was laid to rest in the crypt of St. Paul's Cathedral, next that of Nelson.

CONTINUED ON PAGE 6155.